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THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

1914

EDITED BY

FRANCIS G. WICKWARE, B.A., B.Sc.

WITH CO-OPERATION OF A SUPERVISORY BOARD
REPRESENTING NATIONAL LEARNED SOCIETIES

NEW YORK AND LONDON
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PREFACE

With the publication of this volume, covering the events and progress of 1914, the AMERICAN YEAR BOOK reaches its fifth issue. In general, the YEAR BOOK for 1914 follows the lines of the issue for 1913. Two departments, "Population and Immigration" and "Prevention, Correction, and Charity," have been consolidated with the department, "Social and Economic Problems." The order of the remaining departments is unchanged, but the subdivision of topics has been carefully revised as experience has demonstrated the possibility of improvement for the convenience of the user. New titles have been added to the list of permanent topics, and a few topics have been combined in a new arrangement. The scope of the work remains as defined in the preface to the first issue:

"The AMERICAN YEAR BOOK is intended for the needs of writers and searchers of every kind. Because of its inclusion of scientific subjects, it has been necessary to limit the political and statistical material which is the staple of many annual handbooks; the book does not aim to treat everything that could be useful, but throughout to select from the enormous mass of details those things which, in the judgment of experts in each field, are most significant, most permanent in value, most likely to answer the searchers' questions.

"The AMERICAN YEAR BOOK does not aim to be a rival of other annual publications, either foreign or domestic. Details as to elections, the *personnel* of state and municipal governments, political personalities, societies, and educational, literary, and scientific institutions have deliberately been reduced, in order to make room for material of a kind not found in most of the annuals. The AMERICAN YEAR BOOK appeals first of all to students in all fields, who wish a record of progress, not only in their own, but in other departments of human endeavor. It is intended, also, as a handbook for busy men, editors, contributors, professional men, teachers, scientific workers, engineers, practical and business men, who wish to verify or confirm points that arise in their minds; and to serve as a handy body of reference material settling questions of fact. Throughout the work the object has been to make the volume convenient for the user; hence the YEAR BOOK is arranged on a plan entirely unique in publications of this general character. It is intended to make reference easier by subdividing material into departments, by putting cognate subjects into close association, and by liberal cross-references, making it easy to turn at once to the discussions relating to any subject. A full and carefully analyzed index is also provided in order to open up all remote connections and relations of a topic. This arrangement by groups of affiliated subjects, instead of haphazard or alpha-

betical succession of topics, is more convenient, and at the same time more scientific."

The Supervisory Board of representatives of national learned and scientific societies, officially known as the American Year Book Corporation, has continued actively to assist in the preparation of the YEAR BOOK. The members of this Board, who originally projected the work, remain individually responsible for the scope and content of the reviews of their respective fields; several are themselves contributors; many have coöperated with the Editor in securing contributors; and all have assisted the Editor with criticism and counsel. The Supervisory Board has now forty members, a complete list of whom will be found on a subsequent page, representing forty-four societies. The American Paleontological Society, represented by Dr. Charles R. Eastman, has been added to the list of constituent societies. Two other changes in personnel have occurred during the year: Rear-Admiral Caspar F. Goodrich has succeeded Captain Carlos Gilman Calkins as representative of the United States Naval Institute, and the vacancy caused by the death of Henry Gannett, President of the National Geographic Society, has been filled by the appointment of Cyrus C. Adams, representing the American Geographical Society.

One hundred and twenty-two contributors have coöperated in the preparation of this issue. All are experts in their special fields, and the complete list printed on a subsequent page contains many names of eminence.

To Americans, no less than to those directly engaged, the European War overshadows in importance all other events of the year; its causes, the military and naval operations, and the manifold ramifications of its effects in this country, are comprehensively reviewed. Among events of more local interest, the most important part of the year's record is, of course, the crisis which brought the United States to the verge of war with Mexico. American events and progress in politics, economics, sociology, the sciences, the arts, and the humanities, are surveyed with fullness and authority, and are placed in their proper perspective by a background of the significant events in foreign countries.

The acknowledgments of the Editor are due, not only to the contributors and members of the Supervisory Board, but also to the many public officials, Federal, state, and municipal, who have courteously responded to requests for statistical data, and to the readers who have offered disinterested criticism of previous issues. The Editor welcomes criticism and suggestions from any source on the selection of material and method of treatment, or on the more formal side of typography, make-up, and conveniences for users.

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THE AMERICAN YEAR BOOK is arranged in thirty-three departments, in which are grouped articles on related subjects. In the following Table of Contents only the main topics in each department are listed; a complete Index will be found at the end of the volume. SMALL CAPS indicate titles of separate articles.

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Henry W. Farnam, Professor of Political Economy, Yale University. AMERICAN ASSOCIATION FOR LABOR LEGISLATION.

E. Porter Felt, New York State Entomologist. AMERICAN ASSOCIATION OF ECONOMIC ENTOMOLOGISTS.

Franklin H. Giddings, Professor of Sociology, Columbia University. AMERICAN SOCIOLOGICAL SOCIETY.

Caspar F. Goodrich, Rear-Admiral, U. S. N., retired. UNITED STATES NAVAL INSTITUTE.

Albert Bushnell Hart, Professor of Science of Government, Harvard University. AMERICAN HISTORICAL ASSOCIATION.

Hastings Hornell Hart, Sage Foundation, New York. NATIONAL CONFERENCE OF CHARITIES AND CORRECTION.

A. V. Williams Jackson, Professor of Indo-Iranian Languages, Columbia University. Secretary, AMERICAN ORIENTAL SOCIETY.

Emory R. Johnson, Professor of Commerce, University of Pennsylvania. AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE.

George W. Kirchwey, Professor of Law, Columbia University. AMERICAN INSTITUTE OF CRIMINAL LAW AND CRIMINOLOGY.

C. Grant La Farge, New York. AMERICAN INSTITUTE OF ARCHITECTS.

Alexander Lambert, Professor of Clinical Medicine, Cornell University Medical School. AMERICAN MEDICAL ASSOCIATION.

Waldo Lincoln, Worcester, Mass. President, AMERICAN ANTIQUARIAN SOCIETY.

George Grant MacCurdy, Professor of Archeology, Yale University. Secretary, AMERICAN ANTHROPOLOGICAL ASSOCIATION.

Samuel J. Meltzer, Rockefeller Institute, New York. AMERICAN PHYSIOLOGICAL SOCIETY.

George T. Moore, Professor of Applied Botany, Washington University. Secretary, BOTANICAL SOCIETY OF AMERICA.

Edward L. Nichols, Professor of Physics, Cornell University. AMERICAN PHYSICAL SOCIETY.

Calvin W. Rice, Consulting Engineer. Secretary, AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

John C. Rolfe, Professor of Latin Languages and Literature, University of Pennsylvania. AMERICAN PHILOLOGICAL ASSOCIATION.

Henry N. Russell, Professor of Astronomy, Princeton University. ASTRONOMICAL AND ASTROPHYSICAL SOCIETY OF AMERICA.

Edwin R. A. Seligman, Professor of Political Economy and Finance, Columbia University. AMERICAN ECONOMIC ASSOCIATION.

Alexander Smith, Professor of Chemistry, Columbia University. AMERICAN CHEMICAL SOCIETY.

Bradley Stoughton, Consulting Engineer. Secretary, AMERICAN INSTITUTE OF MINING ENGINEERS; AMERICAN SOCIETY FOR TESTING MATERIALS.

Wendell M. Strong, Mutual Life Insurance Company. ACTUARIAL SOCIETY OF AMERICA.

Walter F. Willcox, Professor of Economics and Statistics, Cornell University. President, AMERICAN STATISTICAL ASSOCIATION.

W. W. Willoughby, Professor of Political Science, Johns Hopkins University. Secretary, AMERICAN POLITICAL SCIENCE ASSOCIATION.

Edwin B. Wilson, Professor of Mathematics, Massachusetts Institute of Technology. AMERICAN MATHEMATICAL SOCIETY.

George G. Wilson, Professor of International Law, Harvard University. AMERICAN SOCIETY OF INTERNATIONAL LAW.

Clinton Rogers Woodruff, Secretary, NATIONAL MUNICIPAL LEAGUE.

James I. Wyer, New York State Library. AMERICAN LIBRARY ASSOCIATION.

CONTRIBUTORS

Nathan Abbott, A.B., LL.B.: Law and Jurisprudence.
Professor of Law, Columbia University.

Cyrus C. Adams, A.B.: Exploration and Geographical Research.
Editor, *Bulletin of the American Geographical Society.*

Eugene E. Agger, M.A., Ph.D.: Banking and Currency.
Assistant Professor of Economics, Columbia University.

Edwin West Allen, Ph.D.: Agriculture.
Assistant Director, Office of Experiment Stations, U. S. Department of Agriculture; Editor, *Experiment Station Record;* Secretary, Society for the Promotion of Agricultural Science.

Carl Lucas Alsberg, A.M., M.D.: Biological and Food Chemistry.
Chief, Bureau of Chemistry, U. S. Department of Agriculture.

Andrew P. Anderson, B.S.: Highways.
Highway Engineer, Office of Public Roads, U. S. Department of Agriculture.

Irene Osgood Andrews, A.B.: Labor Legislation.
Assistant Secretary, American Association for Labor Legislation.

John Bertram Andrews, A.M., Ph.D.: Labor; Unemployment.
Secretary, American Association for Labor Legislation; Editor, *American Labor Legislation Review.*

Joseph A. Anglada, M.E.: Automobiles.
Consulting Mechanical Engineer.

Charles Edward Asnis, M.A., LL.B.: International Relations.
Member of the Philadelphia Bar; Lecturer in the University of Pennsylvania.

Wallace Walter Atwood, B.S., Ph.D.: Physical Geography.
Professor of Physiography, Harvard University; Geologist, U. S. Geological Survey.

Leonard S. Austin, Ph.B.: Copper.
Consulting Mining and Metallurgical Engineer.

William Nickerson Bates, A.M., Ph.D.: Classical Archæology.
Professor of Greek, University of Pennsylvania; Editor, Department of "News and Discussions," *American Journal of Archæology.*

Morris Bien, Ph.B., LL.M.: Public Lands.
Supervising Engineer and Counsel, U. S. Reclamation Service.

Benjamin P. Bourland, A.M., Ph.D.: Romance Languages and Literature.
Professor of the Romance Languages, Western Reserve University.

Harlow Brooks, M.D.: Medicine.
Professor of Clinical Medicine, University and Bellevue Hospital Medical College.

Arthur Wesley Browne, M.S., Ph.D.: Inorganic and Physical Chemistry.
Professor of Inorganic and Analytical Chemistry, Cornell University.

Francis Marion Burdick, A.B., LL.B., LL.D.: Law and Jurisprudence.
Dwight Professor of Law, Columbia University.

William Campbell, M.A., D.Sc., Ph.D.: PHYSICAL PROPERTIES OF METALS AND ALLOYS.
Associate Professor of Metallurgy, Columbia University; Metallographer, U. S. Bureau of Mines.

Henry King Carroll, LL.D.: RELIGION AND RELIGIOUS ORGANIZATIONS.
Associate Secretary, Federal Council of Churches of Christ in America.

Emile M. Chamot, Ph.D., B.Sc.Chem.: SANITARY CHEMISTRY.
Professor of Sanitary Chemistry and Toxicology, Cornell University.

Clarence Griffin Child, Ph.D., L.H.D.: ENGLISH LITERATURE.
Professor of the English Language, University of Pennsylvania.

Daniel H. Cox: NAVAL ARCHITECTURE AND MARINE ENGINEERING.
Graduate, U. S. Naval Academy and Royal Naval College, Greenwich, England; Secretary, American Society of Naval Architects and Marine Engineers.

William Thomas Cross, A.M.: CHARITY.
General Secretary, National Conference of Charities and Correction.

Arthur Davis Dean, B.S., D.Sc.: VOCATIONAL EDUCATION AND GUIDANCE.
Chief, Division of Vocational Schools, University of the State of New York.

Walter Dennison, Ph.D : EPIGRAPHY.
Professor of Latin and Greek, Swarthmore College.

Frank Walbridge DeWolf. S.B.: STATE GEOLOGICAL SURVEYS.
Director, State Geological Survey of Illinois; Secretary, Association of American State Geologists.

Raymond Smith Dugan, M.A., Ph.D.: ASTRONOMY.
Assistant Professor of Astronomy, Princeton University.

Benjamin Minge Duggar, M.S., A.M., Ph.D.: BOTANY.
Professor of Plant Physiology, Missouri Botanical Garden and Washington University.

Charles Rochester Eastman, A.M., Ph.D.: PALEONTOLOGY.
Associate in Ichthyology, American Museum of Natural History, New York; Editor, Paleontological Society of America.

Walter H. Evans, A.M., Ph.D.: DISEASES OF PLANTS.
Botanical Editor, *Experiment Station Record;* Chief of Insular Stations, Office of Experiment Stations, U. S. Department of Agriculture.

Robert Lee Faris, C.E.: TERRESTRIAL MAGNETISM.
Assistant Inspector of Hydrography and Topography, U. S. Coast and Geodetic Survey.

James Ford, Ph.D.: COÖPERATION.
Assistant Professor of Social Ethics, Harvard University.

Charles Clifford Gill: THE NAVY.
Lieutenant, United States Navy.

Edwin J. Glasson, B.S.A.: HORTICULTURE; FORESTRY.
Horticulture and Forestry Editor, *Experiment Station Record,* U. S. Department of Agriculture.

Ernest Henry Godfrey, F.S.S.: CANADA.
Editor, Census and Statistics Office, Ottawa, Canada.

Leon Goldmerstein, M.A.: MECHANICAL ENGINEERING.
Editor, "Engineering Survey," *Journal of the American Society of Mechanical Engineers.*

Selskar Michael Gunn, S.B.: PUBLIC HEALTH AND HYGIENE.
Associate Professor of Sanitary Biology and Public Health, Massachusetts Institute of Technology; Secretary, American Public Health Association; Editor, *American Journal of Public Health.*

Edward Everett Hale, A.B., Ph.D.: AMERICAN LITERATURE.
Professor of English, Union College.

John Howe Hall, A.M.: IRON AND STEEL.
Consulting Metallurgical Engineer.

Robert Dawson Hall: COAL, COKE, AND PETROLEUM.
Associate Editor, *Coal Age.*

Fred Geer Harden, M.A.: RECLAMATION.
Irrigation Engineer, Office of Irrigation Investigations, U. S. Department of Agriculture.

Richard Compton Harrison, A.M., LL.B.: PUBLIC SERVICES.
Formerly Assistant Counsel, Public Service Commission, First District of New York; Deputy Commissioner of Docks, New York.

Rowland Haynes, M.A.: RECREATION.
Field Secretary, Playground and Recreation Association of America.

William Arthur Heidel, Ph.D.: GREEK LITERATURE.
Professor of Greek, Wesleyan University.

Roscoe R. Hill, A.B.: LATIN AMERICA.
Instructor in History, Columbia University.

Heinrich O. Hofman, E.M., Met. E., Ph.D.: LEAD.
Professor of Metallurgy, Harvard University and Massachusetts Institute of Technology.

Arthur Norman Holcombe, Ph.D.: POPULAR GOVERNMENT.
Assistant Professor of Government, Harvard University.

William A. Hooker, B.S., D.V.M.: ECONOMIC ENTOMOLOGY; VETERINARY MEDICINE.
Editor for Economic Entomology and Veterinary Medicine, *Experiment Station Record*, U. S. Department of Agriculture.

G. Carl Huber, M.D.: ANATOMY.
Professor of Anatomy, University of Michigan.

Grover G. Huebner, Ph.D.: TRADE, TRANSPORTATION, AND COMMUNICATION.
Assistant Professor of Transportation and Commerce, University of Pennsylvania.

Solomon S. Huebner, Ph.D.: ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS; PROPERTY AND CASUALTY INSURANCE.
Professor of Insurance and Commerce, University of Pennsylvania.

Howard Huntington, A.B.: AERONAUTICS.
Secretary, Aero Club of America.

R. Ingalls: RURAL CREDITS.
Author and Specialist in Rural Credit Systems.

Walter Renton Ingalls, S.B.: ZINC.
Editor, *Engineering and Mining Journal.*

Abram S. Isaacs, A.M., Ph.D.: JUDAISM.
Professor of Semitic Languages, New York University.

Morris Jastrow, Jr., Ph.D.: SEMITIC PHILOLOGY AND LITERATURE.
Professor of Semitic Languages, University of Pennsylvania.

Wolfgang L. G. Joerg: CARTOGRAPHY.
Assistant Editor, *Bulletin of the American Geographical Society.*

Alexander Johnson: SOCIAL AND MENTAL HYGIENE.
Director, Extension Department, Training School, Vineland, N. J.

Alexander Bryan Johnson, Ph.B., M.D.: SURGERY.
Professor of Clinical Surgery, Columbia University.

Harvey Ernest Jordan, M.A., Ph.D.: ZOÖLOGY.
Professor of Histology and Embryology, University of Virginia.

Edwin Roulette Keedy, A.B., LL.B.: CRIMINAL LAW.
Professor of Law, Northwestern University.

Roland G. Kent, A.M., Ph.D.: INDO-EUROPEAN PHILOLOGY.
Assistant Professor of Comparative Philology, University of Pennsylvania; Lecturer in Sanskrit, Bryn Mawr College.

Philip Klein, A.B.: CRIMINOLOGY AND PENOLOGY.
Assistant Secretary, Prison Association of New York.

Charles Knapp, A.M., Ph.D.: LATIN LITERATURE.
Professor of Classical Philology, Columbia University.

Howard L. Knight, B.S.: AGRICULTURAL LEGISLATION.
Assistant Editor, *Experiment Station Record,* U. S. Department of Agriculture.

Adolph Knopf, M.S., Ph.D.: ECONOMIC GEOLOGY.
Geologist, United States Geological Survey.

John Koren, A.B., S.T.B.: THE LIQUOR PROBLEM.
President of the American Statistical Association.

Alexander Lambert, M.D.: MEDICINE.
Professor of Clinical Medicine, Cornell University.

Winthrop David Lane, A.B.: CONSTRUCTIVE AND PREVENTIVE SOCIAL WORK.
Member of Editorial Staff, the *Survey Magazine.*

Herbert Sidney Langfeld, Ph.D.: PSYCHOLOGY.
Instructor in Psychology, Harvard University.

George Washington Littlehales, C.E.: OCEANOGRAPHY.
Hydrographic Engineer, U. S. Hydrographic Office.

David Lloyd, A.M., LL.B.: PAINTING, SCULPTURE, AND HANDICRAFTS.
Former Editor of the *International Studio* and Art Editor of the New York *Evening Post.*

Charles E. Locke, S.B.: MINING AND ORE DRESSING.
Assistant Professor of Mining Engineering and Metallurgy, Massachusetts Institute of Technology.

Robert Bruce McBride: THE ARMY.
Captain of Coast Artillery, U. S. Army; Assistant to the Quartermaster-General.

George Grant MacCurdy, Ph.D.: ANTHROPOLOGY AND ETHNOLOGY.
Assistant Professor of Archeology, Yale University.

Frank McIntyre: TERRITORIES AND DEPENDENCIES.
Brigadier-General, U. S. Army; Chief, Bureau of Insular Affairs, U. S. War Department.

Ralph Harper McKee, A.M., Ph.D.: ORGANIC CHEMISTRY.
Professor of Chemistry, University of Maine.

Frederick H. Martens: MUSIC.
Musical journalist, on staff of the *Musical Observer;* New York correspondent of the *London Musical Record.*

Alexander Martin: THE EUROPEAN WAR.
A military officer with a record of naval service who for professional reasons writes pseudonymously.

John Mabry Mathews, A.B., Ph.D.: STATE AND COUNTY GOVERNMENT.
Associate in Political Science, University of Illinois.

Herbert Ashton Megraw, B.S.: GOLD AND SILVER.
Editorial Staff, *Engineering and Mining Journal.*

Samuel James Meltzer, M.D., LL.D.: PHYSIOLOGY AND PHARMACOLOGY.
Head of the Department of Physiology and Pharmacology, Rockefeller Institute for Medical Research.

Charles Elwood Mendenhall, B.S., Ph.D.: PHYSICS.
Professor of Physics, University of Wisconsin.

Lewis Meriam, A.M., B.L.: CHILD WELFARE.
Assistant Chief, Children's Bureau, U. S. Department of Labor.

Wesley Clair Mitchell, A.B., Ph.D.: ECONOMICS.
Professor of Economics, Columbia University.

Clifford Herschel Moore, Ph.D., Litt.D.: ANCIENT LITERATURE.
Professor of Latin, Harvard University.

Elisha Wilson Morse, B.A.S.: DAIRYING; LIVE STOCK.
Compiler and Editor, Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture.

Montrose J. Moses, B.S.: THE DRAMA.
Journalist and Dramatic Critic.

John Nolen, Ph.B., A.M., Sc.D.: LANDSCAPE ARCHITECTURE.
Landscape Architect and City Planner.

Charles Palache, B.S., Ph.D.: MINERALOGY AND PETROGRAPHY.
Professor of Mineralogy, Harvard University.

Ralph Barton Perry, A.M., Ph.D.: PHILOSOPHY.
Professor of Philosophy, Harvard University.

Harry Fielding Reid, C.E., Ph.D.: EARTHQUAKES AND VOLCANOES.
Professor of Dynamical Geology and Geography, Johns Hopkins University; Special Expert in Charge of Earthquake Records, U. S. Geological Survey.

Calvin Winsor Rice, S.B.: MECHANICAL ENGINEERING.
Secretary, American Society of Mechanical Engineers.

Walter F. Rogers, LL.M.: PATENTS AND INVENTIONS.
Member of the New York and Washington Bars.

William Horace Ross, M.Sc., Ph.D.: AGRICULTURAL CHEMISTRY.
Scientist in Soil Investigations, Bureau of Soils, U. S. Department of Agriculture.

Gar A. Roush, A.B., M.S.: ELECTROCHEMISTRY.
Assistant Professor of Metallurgy, Lehigh University; Assistant Secretary, American Electrochemical Society; Editor, *The Mineral Industry.*

George Francis Sever, M.Sc.: ELECTRICAL ENGINEERING.
Consulting Electrical Engineer.

Herbert Newhard Shenton, A.M., B.D.: SOCIOLOGY.
Assistant in Sociology, Columbia University.

Daniel Bussier Shumway, B.S., Ph.D.: GERMANIC LITERATURE.
Professor of Germanic Philology, University of Pennsylvania.

Anna Tolman Smith: EDUCATION AND EDUCATIONAL INSTITUTIONS.
Specialist, U. S. Bureau of Education.

Ethel Marion Smith: FISHERIES.
Editor, U. S. Bureau of Fisheries.

George Otis Smith, Ph.D.: U. S. GEOLOGICAL SURVEY.
Director, U. S. Geological Survey.

William M. Steuart, LL.B., LL.M.: MANUFACTURES.
Chief Statistician for Manufactures, U. S. Census Bureau.

Wendell M. Strong, M.A., Ph.D., LL.B.: LIFE INSURANCE.
Associate Actuary, Mutual Life Insurance Company, New York.

Carl Dean Thompson, M.A., B.D.: SOCIALISM.
Director, Information and Research Bureau, Socialist Party of America.

William Lawrence Tower, Sc.B.: ORGANIC EVOLUTION.
Associate Professor of Zoölogy, University of Chicago.

James Libby Tryon, A.B., B.D., LL.B., Ph.D.: PEACE AND ARBITRATION.
Director, New England Department, American Peace Society.

Thurman William Van Metre, A.M., Ph.D.: PANAMA CANAL; WATERWAYS AND HARBORS.
Instructor in Transportation and Commerce, University of Pennsylvania.

Robert DeCourcy Ward, A.M.: METEOROLOGY AND CLIMATOLOGY.
Professor of Climatology, Harvard University.

Frank Julian Warne, M.A., Ph.D.: IMMIGRATION.
Professional Expert on Railway Economics; Special Expert on Foreign-born Population, Thirteenth Census.

Lloyd Warren, B.A., Ph.B., A.D.G.: ARCHITECTURE.
Architect.

Francis Graham Wickware, B.A., B.Sc.: AMERICAN HISTORY; FOREIGN AFFAIRS; MISCELLANEOUS.
Managing Editor, THE AMERICAN YEAR BOOK.

Frank Clinton Wight, C.E.: CIVIL ENGINEERING.
Managing Editor, *Engineering News.*

Charles Clarence Williamson, A.B., Ph.D.: PUBLIC FINANCE.
Librarian, Municipal Reference Library, New York City.

Edwin Bidwell Wilson, Ph.D.: MATHEMATICS.
Professor of Mathematics, Massachusetts Institute of Technology.

James Renwick Withrow, B.S., Ph.D.: INDUSTRIAL CHEMISTRY.
Professor of Industrial Chemistry, Ohio State University.

Martha Wollstein, M.D.: PATHOLOGY AND BACTERIOLOGY.
Associate of the Rockefeller Institute for Medical Research; Pathologist to the Babies' Hospital, New York.

James Albert Woodburn, A.M., Ph.D., LL.D.: POLITICS AND PARTIES.
Professor of American History and Politics, Indiana University.

Clinton Rogers Woodruff, Ph.B., LL.B.: CIVIL SERVICE; MUNICIPAL GOVERNMENT; SOCIAL WORK OF THE CHURCHES.
Secretary, National Municipal League; Editor, *National Municipal Review.*

Jay Backus Woodworth, B.S.: DYNAMIC AND STRUCTURAL GEOLOGY.
Associate Professor of Geology, Harvard University.

James Ingersoll Wyer, Jr., M.L.S.: LIBRARIES.
Director, New York State Library.

THE AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

I. AMERICAN HISTORY

FRANCIS G. WICKWARE

THE SIXTY-THIRD CONGRESS, SECOND SESSION

The Legislative Programme.—President Wilson's first annual message to Congress, of Dec. 2, 1913, recommended the following Administration policies for legislative action:

1. Prevention of private monopoly by additional anti-trust legislation.
2. Establishment of a system of rural credits.
3. Provision of a national primary for the nomination of Presidential candidates.
4. Extension of citizenship to Porto Rico, a further degree of self-government to Hawaii, and ultimate independence to the Philippines.
5. Development of the resources of Alaska, with a government system of railways as the first step, and establishment of a full territorial form of government.
6. Extension of the equipment and powers of the Bureau of Mines for the encouragement of safe and economical mining.
7. Provision of an effective employers'-liability law for railway employees.
8. Alleviation of the conditions surrounding the employment of sailors.

The greater part of this programme still awaits Congressional action. The second session of the Sixty-third Congress, opened on Dec. 1, 1913, was adjourned for the Christmas recess on the enactment of the Federal Reserve Act on the 23d. In the first four months after the resumption of the session on Jan. 12, Congress enacted a bill for the construction of a government railway in Alaska, but its energies were diverted from the remainder of the President's programme to questions arising out of the foreign relations of the United States (see *The Administration, infra*). A caucus of the House Democrats on May 12 limited the deliberations of the remainder of the session to the appropriation bills and three bills of the anti-trust legislation. In August the outbreak of the European conflict created a new series of problems with which Congress undertook to deal before adjournment. Two of the anti-trust bills were enacted late in the session; the third was postponed to avoid further complication of a railroad situation already sufficiently difficult. Thus, at the close of the session on Oct. 24, Congress had disposed of but two of the items of the President's programme, and of them only partially. But the legislative history of the session is of deep and permanent interest, independent of the development of the policies of the Administration. Its more important features are outlined in the following pages, and individual measures are discussed also in articles on special topics in other parts of the YEAR BOOK. A full list of the enactments of general interest is given in Department V, *The National Administration*.

The Development of Alaska.—The report of the Alaska Railways Commission, submitted to Congress with a special message of approval by President Taft on Feb. 6, 1913 (*A. Y. B.*, 1913, pp. 235, 576), recommended the construction of a government rail-

way system as a preliminary to the systematic development of the resources of the territory. Bills "to authorize the President of the United States to locate, construct, and operate railroads in the territory of Alaska" were introduced at the opening of the first session of the Sixty-third Congress, by Senator Chamberlain (Ore.) in the Senate (S. 48) on April 7, 1913, and by Mr. Wickersham (Alaska) in the House (H. R. 1739) on the following day. The Chamberlain bill, reported to the Senate on June 17, 1913, was taken up as unfinished business on the reassembly of Congress after the holiday recess, and passed the Senate on Jan. 24 by a vote of 46 to 16, three Democrats voting in opposition and 15 Republicans and one Progressive with the majority. In the House the Chamberlain bill was substituted for the Wickersham bill, reported on Nov. 26, 1913, and passed with certain amendments on Feb. 18 by a vote of 230 to 87, 78 Republicans and Progressives voting for the bill and 67 Democrats with the minority. The House rejected the financial provisions of the Senate bill, which authorized an appropriation of $40,000,000 to be derived from an issue of 30-year three per cent. bonds, and introduced a less extravagant plan which finally prevailed in conference.

The Act was signed by the President on March 12 (Public, No. 69). It directed him to construct, maintain and operate, with the necessary branches, feeders and telegraph and telephone lines, along a route or routes designated by him,

> a line or lines of railroad in the Territory of Alaska not to exceed in the aggregate 1,000 miles, to be so located as to connect one or more of the open Pacific Ocean harbors on the southern coast of Alaska with the navigable waters in the interior of Alaska and with a coal field or fields so as best to aid in the development of the agricultural and mineral or other resources of Alaska and the settlement of the public lands therein and so as to provide transportation of coal for the Army and Navy, transportation of troops, arms, munitions of war, the mails, and for other governmental and public uses, and for the transportation of passengers and property.

For this purpose it empowered him to acquire by purchase or condemnation under the power of eminent domain all necessary real or personal property, and to purchase or acquire all necessary equipment; to build or otherwise acquire all necessary docks, wharves, terminal facilities or other structures; to fix equal and uniform rates for the transportation of passengers and property; to make contracts for joint transportation with railroad and steamship companies; and to establish all necessary regulations for the control and operation of the railroad as a common carrier.

The act also authorized the President to acquire by condemnation or by purchase at a price not exceeding the actual physical value any other railroad in Alaska needed to complete the government system; and at his discretion to lease all or any portion of the government system for a period not exceeding 20 years for operation under the jurisdiction and control of the interstate-commerce laws. Finally, the Act prescribed a limit of cost of $35,000,000, making $1,000,000 immediately available. The preliminary surveys for the system are already under way, in charge of an Alaskan Railroad Commission appointed by the President in May (see also XXI, *Civil Engineering*).

Further progress toward opening the resources of Alaska to commercial development was made in October, in the enactment of legislation which disposed of the contentious problem of the coal lands by releasing them for exploitation by private operators under a royalty system. A bill "to provide for the leasing of coal lands in the Territory of Alaska," drafted by Secretary Lane, was introduced in the House (H. R. 14233) by Mr. Ferris (Okla.) on March 5. It was reported from the Committee on Public Lands on March 9 but made no further progress for nearly six months. To meet the conditions created by the restriction of export of Canadian coal on the outbreak of the European War, the bill was revived in August, passed after brief debate in both houses in September, and signed by the President on Oct. 20 (Public, No. 216).

The Act directs the Secretary of the Interior to survey all coal lands in Alaska, beginning with the Bering River, Matanuska and Nenana fields,

and appropriates $100,000 for this purpose. It authorizes the President to reserve 5,120 acres in the Bering River field, 7,680 in the Matanuska field, and a maximum of one-half the other coal-lands, to be mined at the discretion and under the direction of the President to supply the Navy, the government railroads and other government works and for relief from monopoly or oppressive conditions. The Secretary of the Interior may lease the unreserved lands, by advertisement, competitive bidding or otherwise, in blocks of 40 acres or multiples thereof up to a maximum of 2,560 acres, to any citizen of the United States or domestic corporation in which citizens hold a controlling interest, with the limitation that railroads may acquire only such area as may be required and used solely for its own use. Except that lessees of small contiguous blocks may, with the approval of the Secretary of the Interior, consolidate their holdings into one tract of not more than 2,560 acres, no person or corporation is permitted to acquire an interest in more than one lease. Leases may be for not more than 50 years and subject to renewal, are subject to a royalty of not less than two cents per ton of coal mined or an annual rental of $1 per acre on properties idle after the fifth year, and are voidable by appropriate court proceedings in the district court of Alaska if they come under the control of any unlawful trust or form the subject of a contract or conspiracy in restraint of trade in the mining or selling of coal. Leases may not be sublet or assigned without the consent of the Secretary of the Interior, and must contain provisions insuring the exercise of reasonable diligence, skill and care in operation, the prevention of undue waste and the safety and welfare of miners, including the eight-hour day for underground workers, freedom of purchase, fortnightly payments, and fair weighing or measurement. (See also VIII, *Alaska;* and X, *Public Lands.*)

The Philippine Islands.—The policy of the Administration toward the Philippine Islands, as defined by President Wilson in his first annual message of Dec. 2, 1913 (*A. Y. B.*, 1913. p. 18), was embodied in a bill (H. R. 18459), introduced in the House by Mr. Jones (Va.) on Aug. 20, "to declare the purpose of the people of the United States as to the future political status of the people of the Philippine Islands, and to provide a more autonomous government for those islands." A preamble to the bill declared it to be the purpose of the United States to grant to the inhabitants of the Philippines full and complete independence as soon as a stable government has been established therein, and the measure proposed to give them immediately such enlarged participation in the affairs of government "as will enable them, by demonstarting their capacity for self-government, to hasten the date for final separation between the United States and the Philippines." A summary of its provisions is given on another page (see VIII, *Alaska*).

The House passed the Jones bill on Oct. 14 by a vote of 211 to 59. The President urged its enactment by the Senate in his message of Dec. 8:

> How better, in this time of anxious questioning and perplexed policy, could we show our confidence in the principles of liberty, as the source as well as the expression of life, how better could we demonstrate our own self-possession and steadfastness in the course of justice and disinterestedness than by thus going calmly forward to fulfill our promises to a dependent people, who will now look more anxiously than ever to see whether we have indeed the liberality, the unselfishness, the courage, the faith we have boasted and professed?

The Seamen's Bill.—A substitute for the La Follette Seamen's bill (S. 136) passed by the Senate on Oct. 23, 1913 (*A. Y. B.*, 1913, p. 23), drafted by Mr. Alexander (Mo.), was passed by the House on Aug. 27. The Alexander bill is substantially similar to the La Follette measure, but is somewhat less rigorous in its requirements of lifeboat accommodations. It abolishes arrest and imprisonment as penalty for desertion and provides for the abrogation of treaties with foreign governments under which deserting seamen are arrested, detained and surrendered back to the vessel. The provisions of the bill are not specifically restricted to vessels of the United States, and since the regulations it establishes are more stringent than those of the London Convention

on Safety of Life at Sea, the Senate resolution of ratification of the Convention of Dec. 16 contained a proviso reserving to the United States the right to abrogate treaties in conflict with the pending legislation (see XX, *The Merchant Marine*). The Seamen's bill was still in conference at the close of the year.

Future Dealings in Cotton.—The regulation of future dealings in cotton, a subject which has been before Congress for many years, was finally disposed of in August by the enactment of legislation essentially similar to the amendment proposed by Senator Smith (S. C.) and Mr. Lever (S. C.) to the Underwood Tariff Act of 1913 (*A. Y. B.*, 1913, pp. 35, 37, 343). A bill "to regulate trading in cotton futures and provide for the standardization of 'upland' and 'gulf' cottons separately," introduced by Senator Smith on April 7, 1913 (S. 110), was passed by the Senate on March 28. Mr. Lever introduced on April 2 a bill (H. R. 15318) "to tax the privilege of dealing in exchanges, boards of trade and similar places in contracts of sale of cotton for future delivery, and for other purposes," which was substituted for the Senate bill and passed by the House on June 29. On the following day the Senate rejected the amended bill and the conflicting measures were sent to conference. Both had the same purpose, but they proposed to attain the end by different means, the Smith bill by forbidding the use of the mails or telegraph lines for the transmission of quotations or contracts not complying with specified regulations, and the Lever bill by levying a prohibitive tax on transactions not in accordance with the prescribed conditions. In conference the Lever measure was adopted with certain amendments, and President Wilson signed the bill on Aug. 18 (Public, No. 174). Its provisions are summarized on another page (see XIII, *The Conduct of Business*).

The Volunteer Army Act.—The Mexican crisis in April (see *infra*) hastened the enactment of the Volunteer Army bill, introduced by Mr. Hay (Va.), "to provide for raising the volunteer forces of the United States in time of actual or threatened war" (H. R. 7138), which was passed by the House on Dec. 3, 1913. The Senate on April 20 anticipated President Wilson's request for authorization to employ armed force in Mexico by passing the bill with certain minor amendments, most of which were eliminated from the conference report agreed to in both houses on April 24. The Act was approved by the President on April 25 (Public, No. 90). It empowers the President, during the existence of war or while war is imminent, to raise such volunteer forces as Congress may authorize. The period of enlistment is four years, "the same as that for the Regular Army, exclusive of reserve periods," but it is provided that all officers and enlisted men of the volunteer forces shall be mustered out as soon as practicable after the termination of the war or the passing of the imminence thereof. So far as practicable volunteer forces are to be taken from the several states in proportion to population. Any unit of the Organized Militia volunteering as such in three-fourths of its prescribed minimum strength is given the right to be received into the volunteer forces in advance of the raising of other organizations of the same arm or class. The President is authorized, with the consent of the Senate, to appoint all volunteer officers, which may be drawn, under certain restrictions, from the Regular Army, the Organized Militia and the country at large.

The Immigration Bill.—The immigration bill vetoed by President Taft on Feb. 14, 1913 (*A. Y. B.*, 1913, p. 3), was introduced in the Sixty-third Congress on June 13, 1913, by its author, Mr. Burnett (Ala.), in practically identical form (H. R. 6060). The measure was a comprehensive codification and revision of the laws regulating "the immigration of aliens to and the residence of aliens in the United States." The chief of the new provisions was the literacy test prescribed for immigrants and the exclusion of all aliens over 16 years of age unable to read words in common use in English or some other language, with certain exemptions for near relatives of citizens. This provision, strongly supported by organized labor, was held by President Taft to "violate a principle which ought to be

upheld in dealing with our immigration."

The House began debate on the Burnett bill on Jan. 30 under a special rule. Most of the debate dealt with the literacy test, which was strongly opposed on both sides, particularly by Representatives from large cities, but the House declined to eliminate it by a vote on a motion to recommit of 239 to 140, 85 Republicans voting with the majority and 97 Democrats with the minority. Members from the Pacific Coast pressed an amendment to exclude all persons of native Asiatic or African race, and a clause was tentatively adopted on the 2d, by a vote of 110 to 90, extending the exclusion provisions to "Hindus and all persons of the Mongolian or yellow race, of the Malay or brown race, and of the African or black race, unless otherwise provided for" by treaty. But on the following day, in response to an appeal by the Administration for the avoidance of all legislation tending to embarrass the pending negotiations with Japan on the California land law of 1913 (*A. Y. B.*, 1913, pp. 16, 86), the House rejected the amendment by a non-partisan vote of 203 to 54. The bill was passed without material change on Feb. 4 by a vote of 252 to 126.

The Senate Committee on Immigration, to whom the bill was referred on Feb. 5, reported it favorably with certain minor amendments on March 19. Its acceptance by the Senate was practically assured. But the Senate leaders, doubtful of the attitude of the President toward the literacy test and confronted with the possibility of raising an embarrassing issue in the Congressional campaign, allowed the bill to rest during the remainder of the session. It was made unfinished business of the Senate on Dec. 9, and at the close of the year was still under discussion. On Dec. 31 the Senate rejected by a vote of 47 to 12 an amendment to eliminate the literacy test, to which President Wilson has announced his opposition.

Direct Election of Senators.—The Senate Committee on Privileges and Elections on Jan. 17 interpreted the Seventeenth Amendment to invalidate an appointment to the Senate by the governor of a state, without special authorization by the legislature, for the unexpired term of a Senator in office at the time the amendment went into effect. The question arose in the case of the Alabama senatorship vacated by the death of Senator Joseph F. Johnston (Dem.) on Aug. 8, 1913. Resting his assumption of the right on the prohibition in the Seventeenth Amendment of a construction such as to "affect the election or term of any Senator chosen before it became valid as part of the Constitution," Governor O'Neal appointed Representative Henry D. Clayton, and, on his resignation, Frank P. Glass, for the balance of Senator Johnston's term, expiring March 3, 1915 (*A. Y. B.*, 1913, p. 25). It was held, on the other hand, that the intent of the amendment was to abolish immediately and absolutely the procedure of the original provisions of the Constitution, and this interpretation was confirmed by the Senate on Feb. 4 by a vote of 34 to 30, eight Democrats voting with the majority, on a report of the Committee on Privileges and Elections adverse to the seating of Mr. Glass. The vacant senatorship was filled on May 22 by the seating of Francis S. White (Dem.), chosen in a special election on May 11.

The arguments favorable to the seating of Mr. Glass were opposed to the admission of Blair Lee (Dem.), for the unexpired term of Senator Isidor Rayner (Dem.) of Maryland, who died on Nov. 25, 1912. Governor Goldsborough filled the vacancy temporarily by the appointment of William P. Jackson (Rep.) on Nov. 29, 1912, and after the proclamation of the Seventeenth Amendment, issued a writ for a special election on Nov. 4, 1913, in which Mr. Lee was chosen for the balance of Senator Rayner's term, expiring March 3, 1917. The Senate Committee on Privileges and Elections on Jan. 17 approved the procedure of the Maryland election, and the Senate on Jan. 28 agreed to a resolution seating Mr. Lee by a vote of 58 to 13, 14 Republicans voting with the majority.

A bill "providing a temporary method of conducting the nomination and election of United States Senators" for those states failing to enact special legislation prescribing the mode

of election or appointment of Senators under the Seventeenth Amendment and extending direct-primary laws to the nomination of candidates for the Senate (S. 2860) received the President's approval on June 4 (Public, No. 111). It provides that the procedure for the nomination of candidates and the election of Senators shall be carried out as nearly as possible in accordance with the laws governing the nomination and election of Representatives-at-Large, or, where there is no provision for Representatives-at-Large, of the governor of the state.

The Lobby Inquiry.—The committee of the House appointed on July 9, 1913, to investigate the alleged activities of a lobby maintained at Washington by the National Association of Manufacturers (*A. Y. B.*, 1913, p. 25) reported on Dec. 9, 1913 (H. Report No. 113, 63d Cong., 2d sess.). The report defined a lobby as "a person or body of persons seeking to influence legislation by Congress in any manner whatsoever." It found that lobbies had been maintained at Washington by the National Association of Manufacturers, the National Council for Industrial Defense, the National Tariff Commission Association, the American Federation of Labor, and local associations of liquor dealers and money lenders. Of these, the committee found, only the lobbies of the National Association of Manufacturers and the National Council for Industrial Defense were guilty of preventing or seeking to prevent legislation by improper means. The report denounced as "improper, disreputable and dishonest" the formation of temporary associations under the auspices and with the funds of the National Association of Manufacturers through the agency of Michael M. Mulhall, the author of the charges against the Association. As to Mulhall's credibility, the committee found that, although some of his statements on important matters were on his own admission untrue, in others he was fully corroborated by officers of the associations which employed him. The report exonerated all the members of the House of Representatives implicated by Mulhall's allegations of improper influence with the exception of James T. McDermott (Dem.) of the Fourth District of Illinois. McDermott, the committee found, knowing Mulhall's connection with the National Association of Manufacturers, had accepted loans from him, had induced him to assist in the collection of campaign funds, and had been instrumental in placing at his disposal a room in the basement of the Capitol; more important still, McDermott had solicited and accepted loans from Washington pawnbrokers and liquor dealers interested in legislation pending before Congress. While the committee was unable to say that he had been corrupted in his votes, they found that McDermott had been "guilty of acts of grave impropriety, unbecoming the dignity of the distinguished position he occupies."

Mr. MacDonald (Mich.), while agreeing with the findings of the committee, submitted a supplementary report urging reforms in legislative methods to rehabilitate Congress in popular regard and to diminish the power of the lobby to defeat or prevent remedial legislation. He offered for immediate action two resolutions directing the House to determine whether certain officers and agents of the National Association of Manufacturers had been guilty of practices rendering them liable to prosecution for contempt (H. Res. 341), and whether McDermott had been guilty of misconduct rendering him unworthy of a seat in the House and liable to expulsion (H. Res. 342). A subcommittee of the Committee on the Judiciary to which the report and the McDonald resolutions were referred recommended on March 17 the adoption of two resolutions condemning the activities of certain officers and agents of the National Association of Manufacturers and affirming the censure of McDermott implied in the report. The Committee on the Judiciary on April 7 rejected the first resolution as being beyond the scope of the authority of the House. It decided also against the expulsion of McDermott but agreed to report a resolution of censure. Rather than face the public condemnation of Congress, McDermott resigned on July 21. He was reëlected to the Sixty-fourth Congress on Nov. 3.

THE TRUST PROGRAMME

The President's Message on Trust Legislation.—President Wilson delivered his deferred message on trust legislation, the third and last of the major items of the Democratic programme in joint session of the two houses of Congress on Jan. 20. In regard to monopolies and the various means by which they have been organized and maintained, he said, opinion "seems to be coming to a clear and almost universal agreement" in anticipation of Government action (*A. Y. B.*, 1913, p. 56).

What we are proposing to do, therefore, is, happily, not to hamper or interfere with business as enlightened business men prefer to do it, or in any sense to put it under the ban. The antagonism between business and government is over. We are now about to give expression to the best business judgment of America, to what we know to be the business conscience and honor of the land. The Government and business men are ready to meet each other half way in a common effort to square business methods with both public opinion and the law. The best-informed men of the business world condemn the methods and processes and consequences of monopoly, as we condemn them, and the instinctive judgment of the vast majority of business men everywhere goes with them. We shall now be their spokesmen. That is the strength of our position and the sure prophecy of what will ensue when our reasonable work is done.

The programme "which opinion deliberately sanctions and for which business men wait" is founded on the conviction that "private monopoly is indefensible and intolerable."

It includes, in the first place, laws which will effectually prohibit and prevent such interlockings of the directorates of great corporations—banks and railroads, industrial, commercial and public-service bodies—as in effect result in making those who borrow and those who lend practically one and the same, those who sell and those who buy but the same persons trading with one another under different names and in different combinations, and those who affect to compete in fact partners and masters of some whole field of business.

In the second place, recognizing "the great harm and injustice which has been done to many, if not all, of the great railroad systems of the country by the way in which they have been financed and their own distinctive interests subordinated to the interests of the men who financed them and of other business enterprises which those men wished to promote," the country is ready to accept

a law which will confer upon the Interstate Commerce Commission the power to superintend and regulate the financial operations by which the railroads are henceforth to be supplied with the money they need for their proper development, to meet the rapidly growing requirements of the country for increased and improved facilities of transportation.

Again, the business of the country, now hampered by uncertainty, awaits

further and more explicit legislative definition of the policy and meaning of the existing anti-trust law. . . . We are sufficiently familiar with the actual processes and methods of monopoly and of the many hurtful restraints of trade to make definition possible—at any rate up to the limits of what experience has disclosed. These practices, being now abundantly disclosed, can be explicitly and item by item forbidden by statute in such terms as will practically eliminate uncertainty, the law itself and the penalty being made equally plain.

The business men of the country desire not only that "the menace of legal process in these matters be made explicit and intelligible," but also that "the advice, the definite guidance and information which can be supplied by an administrative body, an interstate commerce commission," be placed at their disposal. The country demands such a commission, not as an agency for making terms with monopoly or for assuming control or direction of business in any way, but as

an indispensable instrument of information and publicity, as a clearing house for the facts by which both the public mind and the managers of great business undertakings should be guided and as an instrumentality for doing justice to business where the processes of the courts or the natural forces of correction outside the courts are inadequate to adjust the remedy to the wrong in a way that will meet all the equities and circumstances of the case.

To promote the self-correction of business and to disturb as little as possible its legitimate course,

penalties and punishments should fall, not upon business itself, to its confusion and interruption, but upon the individuals who use the instrumentalities of business to do things which public policy and sound business practice condemn. Every act of business is done at the command or upon the initiative of some ascertainable person or group of persons. These should be held individually responsible, and the punishment should fall upon them, not upon the business organization of which they make illegal use.

Two other questions demand thoughtful and practical treatment. The first is the interlocking of corporate enterprises, not by identity of directorates, but by the ownership of the greater part of the corporate stock by one person or a group of persons intimately related in interest.

We agreed, I take it, that holding companies should be prohibited, but what of the controlling private ownership of individuals or actually coöperative groups of individuals? Shall the private owners of capital stock be suffered to be themselves, in effect, holding companies? . . . Shall we require the owners of stock, when their voting powers in several companies which ought to be independent of one another would constitute actual control, to make election in which of them they will exercise their right to vote?

The other question is the relief of private litigants injured "in one unfair way or another by the many dislodging and exterminating forces of combination."

I hope that we shall agree in giving private individuals who claim to have been injured by these processes the right to found their suits for redress upon the facts and judgments proved and entered in suits by the Government where the Government has, upon its own initiative, sued the combinations complained of and won its suit, and that the statute of limitations shall be suffered to run against such litigants only from the date of the conclusion of the Government's action.

These projects of reform, the President concluded, are not new things; they are "old, now familiar, and must be undertaken if we are to square our laws with the thought and desire of the country." In enacting them, "we are now about to write the additional articles of our constitution of peace, the peace that is honor and freedom and prosperity."

Preparation of Trust Legislation.—The Administration programme, however, was not carried out with the ease and celerity of the President's anticipation. Its reduction to statutory form for submission to Congress was in itself a long and difficult process. There was no lack of material bearing the official party stamp. The famous "seven sisters" laws of New Jersey (*A. Y. B.*, 1913, pp. 13, 344) represented the considered judgment of the President on the prevention of intrastate monopoly. A Democratic bill to create an interstate trade commission was introduced by Senator Newlands on Feb. 27, 1913, with the report of the Cummins committee on the amendment of the Sherman Act (*A. Y. B.*, 1913, p. 7). Two bills designed to prevent the concentration of corporate capital were submitted in 1913 with the report of the Pujo committee on the investigation of the alleged money trust (*A. Y. B.*, 1913, p. 6). But the immediate prospect of comprehensive revision of the anti-trust laws brought to light a flood of bills, expressive of innumerable shades of individual opinion fixed in the long agitation of the trust question, which their authors were prepared to defend as true solutions of the problem. Thus, while the influence of the President still dominated the party councils, the need of adjustment and compromise within the majority in Congress was enforced by the very nature of the President's proposals.

The Democratic members of the House Committee on the Judiciary, under the chairmanship of Mr. Clayton (Ala.), whom the President had selected as his chief lieutenant in the House (*A. Y. B.*, 1913, p. 25), began early in December, 1913, the formulation of a definite programme. In consultation with the President it was agreed that the objects of the proposed legislation should be the prohibition of interlocking directorates, the definition of the various forms of monopoly and "unreasonable" restraint of trade, and the establishment of an interstate trade commission. Mr. Clayton undertook the preparation of the necessary bills, and shortly after the reassembly of Congress on Jan. 12 submitted to the President the draft of four measures which were adopted as the basis of

the Administration programme. It was agreed meanwhile, as the President's message indicated, that Mr. Clayton's original programme should be extended to include the regulation of the security issues of common carriers. The bill for this purpose was left for subsequent preparation, but it was intimated that the Administration measure would be based on a bill (H. R. 9575) introduced on Dec. 1, 1913, by Mr. Adamson (Ga.), chairman of the House Committee on Interstate and Foreign Commerce.

The Five Brothers.—The Clayton bill for the creation of an interstate trade commission, following closely the lines of Senator Newland's bill (S. 5485, 62d Cong., 3d sess.) for this purpose (see *supra*), proposed the transfer of the organization, appropriations and powers of the Bureau of Corporations to a commission of five members, which should be further endowed with inquisitorial powers over all corporations engaged in interstate or foreign commerce except common carriers; authorized to act in an advisory capacity to the Attorney-General and the courts in suits under the Sherman Act; and directed to assist the Government in preventing violations of the Act and to coöperate with the Attorney-General in terminating unlawful conditions by agreement. The second Clayton bill prohibited, after two years from the date of passage of the act, interlocking of directorates between corporations manufacturing railroad supplies, conducting banks or trust companies or mining or selling coal, and railroad or other public-service corporations engaged in interstate business, and also between banks or trust companies operating under the Federal Reserve Act between banks or trust companies within and banking institutions outside the Federal reserve system. The third of the Clayton bills defined in specific terms the unlawful practices implied in the words "contract," "combination in the form of trust or otherwise," "conspiracy in restraint of trade or commerce," and "monopolize," as used in the Sherman Act and its amendments. Mr. Clayton's fourth bill, dealing with the subject of trade relations, proposed to supplement the Sherman Act with five new sections, prohibiting unfair competition by means of price discrimination, discounts, rebates, or exclusive agreements, and extending to individuals injured by violations of the Sherman Act the right to bring suits in equity against corporations finally adjudged guilty of these violations in suits prosecuted by the Government. The Adamson bill prohibited the interlocking of directorates of naturally competing common carriers, and extended the powers of the Interstate Commerce Commission to the regulation of the issue, retirement and expenditure of the proceeds of stock and bond issues of carriers engaged in interstate commerce.

The Administration Measures.—While the four Clayton bills were published with the sanction of the Administration on Jan. 21, the day following the delivery of the President's trust message, only the first was actually introduced in Congress. The President agreed that the bills should be considered tentative, subject to free discussion, and open to revision. This final elaboration of all the trust measures, according to the President's original plan, should have been entrusted to Mr. Clayton and his Democratic colleagues in the House Committee on the Judiciary. But the House adopted on Jan. 20 a motion offered by Mr. Underwood to refer that part of the President's message relating to the establishment of an interstate trade commission to the Committee on Interstate and Foreign Commerce, leaving the balance of the message to the Committee on the Judiciary. Thus Mr. Clayton's bill for the creation of a trade commission was taken out of his jurisdiction. Introduced in the House on Jan. 22 (H. R. 12120), it was referred to Mr. Adamson's Committee, by whom it was used as the basis of the Covington bill later introduced as an Administration measure.

At the President's behest the two committees undertook to receive and consider the views of interested persons on the "Five Brothers" to the fullest extent consistent with prompt enactment by Congress. The Committee on Interstate and Foreign Commerce began on Jan. 30 a series of hearings on the bill to create an inter-

state trade commission, which led promptly to the abandonment of the Clayton measure. A careful examination exposed certain inconsistencies, contradictions, and grants of powers of search and seizure of doubtful constitutionality. Radicals of all parties contended for a grant to the proposed commission of powers over all corporations analogous to those exercised over common carriers by the Interstate Commerce Commission. But Attorney-General McReynolds opposed the powers conferred by the Clayton bill as a possible source of conflict with the Department of Justice in the enforcement of the anti-trust laws; Mr. Adamson and a majority of his Committee, favoring a gradual development of the functions of the trade commission, opposed an initial grant of the broad powers proposed by Mr. Clayton; and the President was persuaded that the powers already possessed by the Bureau of Corporations, if properly organized, were sufficient, at least temporarily, for the purposes of the commission. The Committee on Interstate and Foreign Commerce continued its hearings until Feb. 20, but on the 16th Mr. Adamson committed the preparation of a new measure to a sub-committee of five Democrats and three Republicans under the chairmanship of J. Harry Covington (Md.). Their modifications of the Clayton draft were embodied in a bill (H. R. 14631) introduced in the House by Mr. Covington on March 14. After some revision in the Committee on Interstate and Foreign Commerce and final approval by the President and the Attorney-General, the Covington bill was reintroduced as an Administration measure on April 13 (H. R. 15613).

The remainder of Mr. Clayton's programme was likewise transformed by conservative influences. In the hearings begun by the Committee on the Judiciary on Jan. 29, business and financial interests offered objections to the radical provisions of the bills to prohibit interlocking directorates, to define the Sherman Act, and to regulate trade relations, which found strong support in Congress. Senator Newlands, chairman of the Senate Committee on Interstate and Foreign Commerce, maintained that the prohibitions of the Sherman Act were sufficient to prevent interlocking of directorates to any extent likely to be injurious to commerce; while the amendment of the Act as contemplated in the definitions and trade-relations bills, adding nothing to its strength, entailed grave danger of impairing its efficacy in the hands of the courts. President Wilson was persuaded by the arguments of Senator Newlands, Mr. Underwood, and others, of the peril of undertaking to define specific violations of the Sherman Act by legislation which might be construed to exempt all violations not specifically described. He was convinced also that the broad prohibitions of the interlocking directorates bill might interfere in many ways with legitimate enterprises. On March 5 the President agreed with Mr. Clayton on extensive modification of the three bills, approving at the same time an extension of the programme to include legislation for the regulation of holding companies. Three days later, revoking an essential recommendation of his trust message, the President agreed to the abandonment of the bill defining the Sherman Act and the substitution of legislation designed to fix and punish individual responsibility for specific acts in violation of existing law. The revised programme Mr. Clayton then proceeded to consolidate in a single measure. Meanwhile the Committee was besieged by the influences which inserted the clause exempting labor organizations and agricultural associations from prosecution under the Sherman Act in the Sundry Civil Appropriation bill of 1913 (*A. Y. B.*, 1913, pp. 4, 23). To fulfill a pledge of the Democratic platform of 1912, for which legislation was already before the House in two bills introduced by Mr. Clayton and favorably reported during the first session of the Sixty-third Congress, the President consented to the incorporation of provisions limiting the issuance of restraining orders in labor disputes and prescribing trial by jury in contempt proceedings. For some weeks Mr. Clayton's Committee withstood the demand of union labor for legislative recognition of a privileged status under the anti-trust laws conferred by

the Bartlett-Bacon bill (H. R. 1873; S. 927) introduced by Mr. Bartlett (Ga.) and Senator Bacon (Ga.) at the opening of the first session of the Sixty-third Congress. At the last moment, however, they yielded and added a clause exempting labor organizations and agricultural organizations from the operation of the anti-trust laws. The composite Clayton bill was introduced in the House as an Administration measure on April 14 (H. R. 15657), with the intimation that the President intended to insist on the enactment of the entire trust programme before the adjournment of Congress.

At the conclusion of the hearings on the bill to create an interstate trade commission, the Committee on Interstate and Foreign Commerce held a brief series of hearings on the bill for the regulation of security issues of common carriers. The testimony disclosed certain defects in Mr. Adamson's draft which made it unacceptable as an Administration measure, and the Committee entrusted to Mr. Rayburn (Tex.) the drafting of a substitute for submission to the House. Mr. Rayburn's bill (H. R. 16133) was introduced on April 29 and reported by the Committee with amendments on May 7. Subsequently the Committee decided upon further modification, and the amended bill was introduced by Mr. Rayburn as a new measure on May 15 (H. R. 16586).

FEDERAL TRADE COMMISSION ACT

The Covington Bill.—The Covington bill (H. R. 15613) "to create an interstate trade commission, to define its powers and duties, and for other purposes," provided for a commission of three members, not more than two of the same political party, appointed by the President with the consent of the Senate for terms of six years, one retiring every alternate year, at an annual salary of $10,000. To this body the bill transfered the powers, duties, organization and appropriations of the existing Bureau of Corporations. It required every corporation (defined as "a body incorporated under law, and also joint-stock associations and all other associations having shares of capital or capital stock or organized to carry on business with a view to profit") with a capital of $5,000,000 or over engaged in interstate or foreign commerce, except common carriers, under penalty of $100 for each day of failure, to file annually with the commission, within three months of the close of its fiscal year, a sworn report covering the fiscal year containing

> such information, statements and records of its organization, bondholders, and stockholders, and financial condition, and also such information, statements, and records of its relation to other corporations, and its business and practices while engaged in commerce,

as the commission might require, and also such other special reports as the commission might from time to time deem advisable. For this purpose the commission was authorized to prescribe a uniform system of annual reports.

The commission was required, on the direction of the President, the Attorney-General or either house of Congress, to investigate and report on any alleged violation of the anti-trust acts by any corporation, and for this purpose it was given the right, through duly accredited agents, to examine and copy any records or other documentary evidence in the hands of an accused corporation. In its reports of such investigations the commission was authorized to include recommendations for terminating unlawful practices, and at its discretion the reports might be made public. Any unfair mode of competition or commercial practice not necessarily constituting a violation of law disclosed in the course of such investigations, the commission was required to report to the President and to publish, as a basis for recommendations to Congress for further legislation for the regulation of commerce.

Any court having before it a suit in equity brought by or under the direction of the Attorney-General under the anti-trust acts, was authorized, if convinced at the conclusion of testimony that the complainant was entitled to relief, to refer the suit to the commission for report on an appropriate form of decree; such a report

was given the standing of the report of a master in other equity causes, to be adopted or rejected in whole or in part at the discretion of the court. After the entry of a final decree in favor of the United States in any suit brought to prevent or restrain any violation of the anti-trust acts, the commission was empowered and required, on its own initiative or the application of the Attorney-General, to investigate and report to the Attorney-General, and at its discretion to publish, the manner of the observance of the decree by the defendant corporation.

To carry out the purpose of the act, jurisdiction was vested in the Federal district courts to issue, on the application of the Attorney-General at the request of the commission, writs of mandamus to enforce compliance with the provisions of the act and orders of the commission. A penalty of a fine of $5,000, or imprisonment for not more than three years, or both, was prescribed for wilful falsification of reports or statements to the commission; a penalty of a fine of $5,000, or imprisonment not exceeding one year, or both, was provided for unauthorized publication by any employee of the commission of any information obtained by the commission from corporations. The commission was required to make for submission to Congress a report containing "such facts and statistics as may be considered of value in the determination of questions connected with the conduct of commerce by corporations" and including also an abstract of the annual and special reports of corporations, which should not, however, disclose trade secrets or private lists of customers.

The Bill in the House.—The Covington bill was reported to the House without change on April 14. President Wilson on May 4 reiterated his determination to press the three bills to enactment before adjournment, and a Democratic caucus of the House on May 12 resolved to confine the deliberations of Congress during the remainder of the session to the trust measures and the appropriation bills. On May 19 the House adopted by a vote of 192 to 87 a special rule limiting general debate on the trust programme to 32 hours—six hours on the Covington bill, 16 hours on the Clayton bill, and ten hours on the Rayburn bill. Under this rule the Covington bill was passed in committee practically unamended on May 22, and was then laid aside for final passage simultaneously with the other trust measures. The House adopted the bill on June 5 without a division.

The Bill in the Senate Committee on Interstate Commerce.—Meanwhile, the trust programme was under active discussion in the Senate Committee on Interstate Commerce. Simultaneously with its introduction in the House, Senator Newlands introduced in the Senate (S. 4160) the Clayton Trade Commission bill. As the original author of the proposal, Senator Newlands protested vigorously against the limitations placed upon the power of the commission in the Covington bill, and on March 6 he appointed a subcommittee of four Democrats and three Republicans, under his own chairmanship, to perfect a substitute. This subcommittee rejected entirely the Clayton definitions and trade relations bills and decided to embody in a single measure the entire trust programme of which it approved. The Senate, however, on receiving the trust bills from the House, referred the Clayton Anti-Trust bill to the Committee on the Judiciary. Thereupon the Committee on Interstate Commerce segregated its proposed legislation on the interstate trade commission, substituted it for the original Newlands bill (S. 4160), and reported the amended bill to the Senate as a substitute for the measure passed by the House.

The Newlands Substitute.—The Senate bill provided for a commission of five members, not more than three of the same political party, appointed for terms of seven years. To distinguish it from the Interstate Commerce Commission, the commission was to be known as the Federal Trade Commission. The commission was invested with specific powers, without reference to those of the superseded Bureau of Corporations, which included and extended those of the Covington bill. First and chiefly it was empowered in addition, as often as it might deem advisable, to investigate

or to require reports on the "organization, business, financial condition, conduct, practices, management and relation to other corporations, or to individuals, associations or partnerships," of any corporation engaged in interstate commerce, banks and common carriers excepted; and also to examine and copy all books, correspondence and records of any sort relating thereto. The bill directed the commission to investigate trade conditions in foreign countries where combinations or practices of dealers may affect injuriously the foreign trade of the United States, and also to investigate whether American exporters have combined with each other or with foreign producers or dealers to control prices abroad. It further directed the commission to prevent unfair competition in commerce, which the bill declared to be unlawful; and for this purpose the commission was empowered to summon any corporation to show cause why it should not be restrained and prohibited from unfair competition alleged against it, and on finding the competition to be prohibited by the act, to issue a restraining order enforceable through injunction by the Federal district court in any district in which unfair competition was used or the corporation carries on business.

The Bill in the Senate.—On the report of the remaining bills of the trust programme a caucus of the Democratic Senators agreed on measures to expedite their passage. Accordingly, on the 23rd, the Newlands substitute was made unfinished business of the Senate. The debate was concerned chiefly with the provisions of the bill empowering the commission to prevent unfair competition. Senator Pomerene (O.), arguing that the original draft offered no means of testing an order of the commission except refusal to obey, submitted a substitute giving corporations the right of appeal to the Federal district courts, which was approved by the Committee on Interstate Commerce on July 31. The Senate rejected the broad privileges of court review suggested by Mr. Pomerene but accepted on Aug. 1 an amendment offered by Mr. Cummins (Ia.) granting somewhat more limited rights. With a few other amendments on minor points the Senate passed the bill on Aug. 5 by a vote of 53 to 16, 12 Republicans voting with the majority.

The Conference Report.—The bill was sent to conference on Aug. 7. Taking the Senate bill as a basis, the conferees, headed by Senator Newlands and Mr. Covington, rearranged and partially recast it in a compromise measure reported on Sept. 4. The provisions of the Senate bill for the prevention of "unfair competition" were retained with certain important amendments. The final bill declared "unfair methods of competition" to be unlawful, and made it the duty of the commission, whenever it appears to be in the public interest, to institute proceedings to restrain any unfair method after due hearing and cause shown. The commission is empowered to apply for the enforcement of its orders directly to the circuit court of appeals, before which the findings of the commission are conclusive as to facts. The judgment of the court of appeals is made final, subject only to review by the Supreme Court upon writ of certiorari. For refusal to testify, to answer any lawful inquiry or to produce documentary evidence on subpœna of the commission, the conference report prescribed a minimum fine of $1,000, with or without imprisonment; for falsification of reports or documentary evidence or concealment or mutilation of evidence the penalty was made a fine of $1,000 to $5,000 or imprisonment for not more than three years or both. These were the chief points in which the conference altered the Senate bill. The conference report was agreed to in the Senate on Sept. 8 by a vote of 43 to 5, and in the House on Sept. 10 without a division. The President signed the bill on Sept. 26 (Public, No. 203). No appointments were made before the close of the year. (See also XIII, *The Conduct of Business.*)

CLAYTON ANTI-TRUST ACT

The Clayton Bill.—The Clayton bill (H. R. 15657), "to supplement existing laws against unlawful restraints and monopolies," fell naturally into four main divisions. The first divi-

sion contained the provisions of the modified bill for the regulation of trade relations. It prohibited discrimination in price between different purchasers of commodities in the same or different sections or communities, not based on differences in the grade, quality or quantity of the commodity sold or on difference in the cost of transportation, but made with the purpose to injure or destroy the business of a competitor of either the purchaser or the seller. It prohibited also the lease or sale of any commodity or the fixing of a price or discount therefor on the condition or understanding that the lessee or purchaser should not use or deal in the product of a competitor of the lessor or seller. For violation of either of these prohibitions a penalty of a fine not exceeding $5,000, or imprisonment not exceeding one year, or both, was prescribed. The bill prohibited the owner or operator of any mine from refusing arbitrarily to sell his product to any responsible person, firm or corporation applying to purchase. It authorized persons, firms or corporations injured in business by any of the practices prohibited by the anti-trust laws to sue the offender in the Federal district court of any district in which he may be found, without respect to the amount in controversy, for the recovery of threefold the damages sustained and the cost of the suit, including a reasonable attorney's fee. The bill provided that a final judgment or decree in any suit or proceeding in equity brought by the United States under any of the anti-trust laws, to the effect that the defendant had or had not engaged in any of the practices prohibited therein, should constitute against or in favor of such defendant conclusive evidence of the same facts and be conclusive as to the same issues of law in favor of or against any other party in any action or proceeding brought against the same defendant under the anti-trust laws. It provided further that during the pendency of any suit or proceeding in equity brought by the United States under the anti-trust laws, the statute of limitations should be suspended in respect of every private right of action based in whole or in part on any of the matter of the complaint. Finally, it was provided that nothing in the anti-trust laws should be construed

to forbid the existence and operation of fraternal, labor, consumers, agricultural, or horticultural organizations, orders, or associations instituted for the purposes of mutual help, and not having capital stock or conducted for profit, or to forbid or restrain individual members of such orders or associations from carrying out the legitimate objects of such associations.

The second division of the bill dealt with holding companies. It forbade any corporation engaged in interstate commerce to acquire directly or indirectly any part of the stock or other share capital of another corporation, with effect to eliminate or lessen competition between the two or to create a monopoly of any line of trade in any section or community; or the stock of two or more corporations with effect, through the use of the stock by the voting or granting of proxies or otherwise, to eliminate or lessen competition between them or to create a monopoly. For violations of the prohibitions respecting holding companies, the same penalty as for price discrimination and exclusive contracts was prescribed.

The third division contained the provisions of the modified bill for the abolition of interlocking directorates. It prohibited, from and after two years from the date of approval of the act, any individual, member of a partnership, or director or officer of a corporation engaged in the production or sale of equipment or supplies, for, or used in the construction or maintenance of, railroads or other common carriers, from acting as a director, officer or employee of any common carrier engaged in interstate or foreign commerce to which he or his concern directly or indirectly leases or sells equipment or supplies or is engaged in the work of construction or maintenance. It prohibited also any individual, member of a partnership, or director or officer of a corporation engaged in the conduct of a bank or trust company from acting as a director, officer or employee of a common carrier for which he or his concern acts as agent in the disposal of securities or from which it purchases security issues. It prohibited further any individual from acting as

a director, officer or employee of more than one bank or trust company operating under the laws of the United States with deposits, capital, surplus, and undivided profits aggregating more than $2,500,000; any private banker or director in a state bank or trust company with the same total resources from acting as a director in any bank operating under the laws of the United States; and any bank or trust company operating under the laws of the United States in any city of more than 100,000 inhabitants from having as a director, officer or employee any private banker or any director, officer or employee of any other banking institution located in the same place. Finally, it was provided that after the specified period of two years no person should be at the same time a director in two or more corporations engaged in interstate or foreign commerce, other than common carriers, by virtue of their business and location of operation competitors, so that elimination of competition between them by agreement would violate any of the provisions of the anti-trust laws. Violation by any individual of any of the prohibitions respecting interlocking directorates was made punishable by a fine of $100 for each day of the offense, or imprisonment for not exceeding one year, or both.

For the punishment of personal responsibility for violation of any of the provisions of the anti-trust laws by a corporation, the bill provided that the offense should be deemed to be that also of the individual directors, officers and agents of the corporation authorizing, ordering or doing any of the prohibited acts, for whom the penalty of a fine not exceeding $5,000 or imprisonment not exceeding one year, or both, was prescribed.

The final division of the bill contained the added legislation on injunctions and contempt. It invested the Federal district courts with jurisdiction to prevent and restrain violations of the act, and made it the duty of the Federal district attorneys, under the direction of the Attorney-General, to institute proceedings in equity for this purpose, pending the decision of which the courts were empowered to issue temporary restraining orders against the alleged violations. It authorized any person, firm, corporation or association to sue for injunctive relief, in any Federal court having jurisdiction over the parties, against threatened loss or damage by a violation of the anti-trust laws by any corporation engaged in interstate or foreign commerce other than a common carrier, under the conditions governing such proceedings in courts of equity. The bill prohibited the issuance of any injunction, interlocutory or permanent, without previous notice and an opportunity to be heard on behalf of the parties to be enjoined, unless, in the court's opinion, the delay would permit irreparable injury to property or a property right of the complainant, when a temporary restraining order might issue without notice.

The bill prohibited the issuance of restraining orders or injunctions by Federal courts in any case involving or growing out of a labor dispute concerning terms or conditions of employment, unless necessary to prevent irreparable injury to property or a property right for which there is no adequate remedy at law. It provided further that no restraining order or injunction issued in connection with a labor dispute should prohibit

any person or persons from terminating any relation of employment, or from ceasing to perform any work or labor or from recommending, advising, or persuading others by peaceful means so to do, or from attending at or near a house or place where any person resides or works or carries on a business or happens to be for the purpose of peacefully obtaining or communicating information, or of peacefully persuading any person to work or to abstain from working; or from ceasing to patronize or to employ any party to such dispute; or from recommending, advising, or persuading others by peaceful means so to do; or from paying or giving to, or withholding from, any person engaged in such dispute, any strike benefits or other moneys or things of value; or from peacefully assembling at any place in a lawful manner and for lawful purposes; or from doing any act or thing which might lawfully be done in the absence of such dispute by any party thereto.

Finally, the bill provided that any person charged with contempt through wilful disobedience of any lawful order or decree of any Federal district

court by the commission of any act forbidden therein of such a character as to constitute a criminal offense under any Federal statute or at common law, should be ordered to show cause why he should not be punished therefor; and if unable sufficiently to purge himself in this preliminary hearing, brought to trial. On the refusal or failure of the person in contempt to make return to the order to show cause, the court was empowered to issue an attachment against his person, or in the case of a corporation, an attachment for the sequestration of its property. In all cases within the purview of this act, the bill provided, trials for contempt should be by the court or a jury at the option of the accused, and such jury trials should conform to the practice in criminal cases prosecuted by indictment or upon information. On conviction a penalty of a fine, to be paid to the United States (not exceeding $1,000) or to the party injured by the contempt, or imprisonment not exceeding six months, or both, was prescribed. It was provided finally that no proceeding for contempt should be instituted more than one year from the date of the act complained of, nor be a bar to any criminal prosecution for the same act.

The Bill in the House.—The Committee on the Judiciary reported the bill to the House on May 6 with many modifications of detail and a few important amendments. Two of the material changes affected the section on interlocking directorates: the first excluded from the prohibitions of the bill mutual savings banks not having a capital stock represented by shares; the second exempted industrial corporations with aggregate capital, surplus and undivided profits less than $1,000,000. The labor group, dissatisfied with the concessions of the original bill, besieged the Committee unsuccessfully with demands for further extension of the privileges of organized labor. But the House was more complaisant. The bill was taken up under the special rule at the conclusion of the debate on the Covington bill on May 22. On the 26th the Democratic leaders agreed with the radicals and with the President to make the exemption of labor organizations and farmers' associations more specific by the added declaration that:

> Nor shall such organizations, orders, or associations, or the members thereof, be held or construed to be illegal combinations or conspiracies in restraint of trade under the anti-trust law.

President Wilson sought to justify his approval of the exemption on the ground that the new legislation was not intended, as organized labor claimed, to exempt labor organizations from the operation of the Sherman law; its purpose was merely to legalize the existence of labor organizations as such, and not to oppose a bar to their prosecution for violations of the law. Under the eyes of the lobby of the American Federation of Labor, the House on June 1 adopted the amended section without a dissenting vote; and on the following day approved an amendment to the section prohibiting the issuance of restraining orders against the weapons of organized labor, legalizing the strike, peaceful assemblage, picketing and the boycott by the declaration that: "Nor shall any of the acts specified in this paragraph be considered or held unlawful." The only other important amendment added to the bill as reported by the Committee on the Judiciary extended the prohibition against arbitrary refusal to sell a responsible person, firm or corporation, in addition to mine operators, to the producers of oil, natural gas or hydro-electric energy. The House passed the bill on June 5, simultaneously with the two other measures of the trust programme, by a vote of 277 to 54; only one Democrat voted in opposition, while the majority included 43 Republicans and 16 Progressives.

The Bill in the Senate Committee on the Judiciary.—The Clayton bill was referred to the Senate Committee on the Judiciary on June 6. It emerged, after six weeks of revision, with many and important modifications. By a special proviso the Philippine Islands were excluded from the scope of the act. The corporate penalties of fine and imprisonment for price discrimination and exclusive contracts were eliminated, these practices being simply declared unlawful. The Committee eliminated also the

section of the House bill prohibiting arbitrary refusal to sell specified commodities, and added a clause defining the right of sellers to choose their own customers, "in *bona fide* transactions and not in restraint of trade." It altered the section establishing the evidential value of final judgments in equity suits brought by the United States under the anti-trust laws, to deny to defendants the right to plead favorable judgments as a defense in suits brought against them by private litigants; and further, to extend the statute of limitations in suits under the anti-trust laws from three to six years. The Committee also eliminated fraternal and consumers' organizations from the list of exempted organizations.

The section on interlocking directorates was extensively modified. The Committee retained the general prohibition applying to all corporations with aggregate capital, surplus and undivided profits of more than $1,000,000, but eliminated the special provisions for banks and altered the regulations for common carriers. The new clauses prohibited, after two years from the approval of the act, any common carrier to have as director, officer, or purchasing agent any person acting as a director or officer or otherwise directly or indirectly interested in any corporation or other concern with which the carrier corporation has dealings in securities, supplies or contracts for construction or maintenance to the amount of more than $50,000 in any one year, unless each such transaction is with the most favorable bidder ascertained by advertisement for tenders in publications and under conditions specified by the Interstate Commerce Commission. The Committee omitted the penalty of $100 per day prescribed for interlocking directors in the House bill, but provided a penalty of a fine not exceeding $25,000 and imprisonment not exceeding two years for any director or officer of a carrier corporation directing or abetting a violation of the new provisions.

The Committee added a new section providing a penalty of a fine of not less than $500, or imprisonment for one or two years, or both, for a director or officer of a carrier corporation misapplying or converting its assets to his own or another's use. In another added section it vested in the Interstate Commerce Commission and the Federal Trade Commission authority to enforce compliance with the provisions of the act on price discrimination, exclusive contracts, holding companies and interlocking directorates, by the issuance of restraining orders against alleged violations established to its satisfaction after due hearing. For the enforcement of its orders, the Commission having jurisdiction was authorized to apply to the Federal district court in any district in which the offending corporation might be found for summary final hearing, in which the findings of the Commission should be *prima facie* evidence of the facts stated therein. It was provided, however, that additional material evidence might be adduced by either party to the proceedings in the district court. It was provided further that an appeal might be taken within 90 days from any final order of either Commission to the Federal district court, and within the same period from any decree of a district court to the Supreme Court.

The Bill in the Senate.—The amended bill was reported to the Senate by Senator Culberson on July 22, and on the passage of the Covington bill on Aug. 5, it was made unfinished business, in accordance with the caucus plan. The Senate made few changes in the amended draft of the Committee on the Judiciary. The most important amendment, adopted on Aug. 17, eliminated the prohibition against price discrimination. At the same time the prohibition against exclusive contracts was eliminated also, but a substitute provision was adopted on the 26th making it unlawful to sell or lease a patented article or process on conditions prohibiting the purchaser or lessee from using the product of any person other than the patentee or requiring the purchase from the patentee of articles not covered by the patent; for violations of this prohibition a maximum penalty of a fine of $5,000 or one year's imprisonment or both was prescribed. On Sept. 2 a new clause was added to the section defining the privileges

of labor which declared that "the labor of a human being is not a commodity or article of commerce." With these amendments and a few others the Senate passed the bill on Sept. 2 (legislative day of Aug. 25) by a vote of 46 to 16. Thirty-eight Democrats voted for the bill and the dissenting votes were all cast by Republicans.

The Conference Report.—The House disagreed to the Senate amendments on Sept. 4 and the bill was sent to conference. In the final draft, reported on Sept. 23, the most important compromise was the restoration, without the specific penalties, of the prohibitions of the House bill against price discrimination and exclusive contracts. The provisions of the House bill on interlocking directorates in banks was restored also, but with amendments exempting banks with aggregate capital, surplus and undivided profits of less than $5,000,000 or located in cities of less than 200,000 population. The conference report vested jurisdiction over common carriers in the Interstate Commerce Commission, over banks in the Federal Reserve Board, and over all other corporations in the Federal Trade Commission. The jurisdiction of the circuit courts of appeal was made exclusive to enforce, set aside or modify orders of commissions pursuant to the Act, and provision was made to expedite proceedings for this purpose by giving them precedence over other litigation. The report was agreed to by the Senate on Oct. 5 by a vote of 35 to 24, and by the House on Oct. 8 by a vote of 244 to 54. The President signed the bill on Oct. 15 (Public, No. 212).

RAILROAD SECURITIES BILL

The Rayburn Bill.—The Rayburn bill (H. R. 16586) proposed to amend section 20 of the Interstate Commerce Act of Feb. 4, 1887, defining the powers of the Interstate Commerce Commission to require reports from carriers engaged in interstate commerce, to "prevent overissues of securities by carriers." The bill specifically included among the matters on which the Commission is authorized to require periodical or special reports the issuance of stocks, bonds or other evidences of indebtedness, the receipts and expenditures on capital account, and all other financial transactions; and it further empowered the Commission to direct the compilation of reports of financial transactions for the benefit of shareholders in such form as the Commission might define. It required common carriers engaged in interstate commerce, on or prior to the date of issue of any stocks, bonds or other evidences of indebtedness payable more than 12 months thereafter, to file with the Commission in any form which it might prescribe a certificate of notification, setting forth in full detail the total authorized amount of the issue and the par value, dates of maturity, rates of interest, redemption prices, and conversion rights or other privileges attaching to the shares of stock, bonds, or notes; the method of disposal and the conditions of sale or pledge of all or any part of the issue; and the purposes to which the proceeds are to be devoted. To the issue of notes or other evidences of indebtedness running for periods of 12 months or less and to the pledging or repledging of stocks or bonds as security for such issues, the bill provided that the same requirements for the filing of certificates of notification should apply, with the exception that in the case of a short-term issue the certificate might be filed within ten days after the date of issue.

The bill made it the duty of the Interstate Commerce Commission in its discretion to make public by appropriate means the information it receives, and directed that the certificates of notification should be deemed at all times public records and open to inspection. It invested the Commission with full power to investigate all financial transactions of common carriers, and for the purpose of verifying any statement or determining the actual cost or value of property acquired or services rendered, to examine the books, papers and correspondence of other carriers, construction or other companies, or individuals concerned therein. The Commission was further empowered to oblige a carrier to disclose every interest of the directors in any transaction under investigation.

It was declared to be unlawful for any common carrier engaged in interstate commerce to issue any capital stock, bonds or other evidences of indebtedness except notes maturing in not more than 12 months in aggregate amount not more than five per cent. of the outstanding stocks and bonds of the carrier, or to assume any other obligation, even though permitted by the authority creating the corporation, except for purposes necessary to the proper performance of its service as a common carrier or for such purposes without the approval of the issue by the Interstate Commerce Commission after investigation in the premises as necessary and appropriate for the purposes stated in the application. The bill required the Commission, on the filing of an application for the approval of a proposed issue of securities, to transmit a copy of the application to the railroad or other commission exercising supervision over common carriers, or in default of such authority to the governor and attorney-general of each state through which the carrier making the application operates any part of its lines. To the state authority thus notified the bill reserved the right to be fully heard on such representations "as they may deem just and proper for preserving and conserving the right and interest of their people and the states," to which the Interstate Commerce Commission was directed to give full consideration in determining the application. Any issue of securities contrary to these regulations, the bill provided, might be enjoined by any court of competent jurisdiction at the suit of the United States or of any director, officer or stockholder of the offending carrier.

Finally, the bill declared it to be unlawful, and punishable by fine or imprisonment or both, for any person to act as an officer or director of more than one carrier engaged in interstate commerce; for any officer of a carrier to issue securities without the approval of the Interstate Commerce Commission; and for any officer, director or directorate of a carrier to appropriate, pay or receive as salaries or dividends any of the proceeds of the sale of stocks or bonds or moneys from any source other than earnings remaining after proper provision for the maintenance of the roadbed, its equipment and facilities.

The Bill in the House.—The Committee on Interstate and Foreign Commerce reported the Rayburn bill to the House without change on May 16, and on the adoption of the Clayton bill in committee on June 2, it was taken up under the special rule. A discussion of the constitutionality of certain clauses of the bill suggested the unwisdom of incorporating its manifold provisions in a single section. Accordingly the Committee redrafted the bill, rearranging the clauses, clarifying the language, and assembling the provisions for the regulation of stock and bond issues in a new section (20a of the Interstate Commerce Act), in order that if one section failed in the courts, the other might stand. The redrafted measure was submitted as a substitute for the Rayburn bill in committee on June 5. It materially improved the form but made very few changes in the matter of the original bill. Of the two amendments of importance, the one extended the maturity of exempted short-term notes from one to two years, and the other made it unlawful for an officer or director of a carrier corporation to profit in any way from the sale or other disposition of its security issues. The House adopted the substitute measure without amendment, and passed the bill on June 5 by a vote of 325 to 12, only eight Republicans and four Democrats voting in opposition.

The Bill Postponed.—The Rayburn bill, referred to the Senate Committee on Interstate Commerce on June 6, was reported to the Senate on July 23 with a few important amendments, but the measure made no further progress. Late in August the President was persuaded that in the perturbed conditions created by the European War the enactment of the measure would require too rigorous a readjustment of the methods of railroad finance. With his consent action in the Senate was indefinitely postponed. The bill has not been revived and it appears from the President's message of Dec. 8 that it will not be urged for passage, at least during the life of the Sixty-third Congress.

THE ADMINISTRATION

The Supreme Court and the Department of Justice. — Horace Harmon Lurton, Associate Justice of the Supreme Court, died suddenly in Atlantic City on July 12 at the age of 70. Justice Lurton was appointed to the Supreme Court by President Taft on the death of Justice Peckham in 1909 and took oath of office on Jan. 3, 1910. President Wilson nominated James Clark McReynolds, Attorney-General of the United States, to the vacancy on Aug. 19. The Senate confirmed the nomination on Aug. 29 and Justice McReynolds took the oath of office as a member of the Supreme Court on Sept. 3. This first break in President Wilson's Cabinet was supplied by the appointment of Thomas Watt Gregory, a special Assistant Attorney-General in the investigation of the New York, New Haven & Hartford Railroad. Mr. Gregory was confirmed by the Senate on Aug. 29 and was sworn as Attorney-General on Sept. 3 (see also V, *The National Administration*).

Opening of the Panama Canal.—By executive order of Jan. 27, President Wilson established on April 1 the permanent organization for the operation of the Panama Canal and the government of the Canal Zone contemplated by the Panama Canal Act of Aug. 24, 1912. The Isthmian Canal Commission ceased to exist, and its authority was transferred to the Civil Governor of the Panama Canal Zone, appointed for four years at an annual salary of $10,000; under him the organization comprises a department of operation and maintenance, in direct charge of the Governor, a purchasing department, a supply department, an accounting department, a health department, an executive office, and a Washington office of the Panama Canal. Col. George W. Goethals was offered the police commissionership of New York City by John Purroy Mitchel, the newly elected mayor, and in a letter to Mayor Mitchel made public on Jan. 23 intimated his willingness to consider the offer on the completion of the canal conditioned on the removal of certain limitations of power by special legislation. But on Jan. 29 President Wilson nominated Colonel Goethals to be the first Civil Governor of the Panama Canal Zone, and the Senate confirmed the nomination on Feb. 14.

A barge service through the canal was opened on May 15 to relieve the congestion of traffic on the Panama Railroad. On Aug. 15 the canal was officially opened to the commerce of the world for vessels drawing not more than 30 ft. of water. The official inaugural passage was made by the Panama Railroad steamship *Ancon*, 10,000 tons, in cargo from New York. The trip was made without incident; the time of passage was nine hours, 70 minutes of which was spent in lockage at Gatun. The first naval vessel to use the canal was the Peruvian torpedo boat *Teniente Rodriguez*, which made the passage on Aug. 18. Arrangements for the formal opening of canal in March, 1915, are being made by a committee of former members of the Isthmian Canal Commission. (See also X, *The Panama Canal.*)

Inauguration of the Federal Reserve System.—The reconstruction of the banking and currency system, the second of the great constructive policies of the Wilson Administration, begun with the passage of the Federal Reserve Act of Dec. 23, 1913 (*A. Y. B.*, 1913, pp. 38-53, 365-367), was completed in 1914 by the inauguration of the Federal Reserve system. Contrary to the apprehensions kindled by the long conflict in Congress, the prompt and unanimous response of the national banks supplied the numerical and financial strength vital to the success of the system. Its organization was delayed by political discords and hampered by the disarrangement of commerce and finance incident to the great war in Europe. But it has been instituted nevertheless in a spirit of coöperation and with a guaranty of genuine and permanent benefit.

The Federal Reserve Act constituted the Secretary of the Treasury, the Secretary of Agriculture and the Comptroller of the Currency a Reserve Bank Organization Committee, empowered, subject to review by the Federal Reserve Board, to determine the division of the country into re-

serve districts and the location in each district of a Federal reserve bank. The office of Comptroller of the Currency, vacant since April, 1913, was not filled until the confirmation of John Skelton Williams on Jan. 19; but without waiting for the appointment of the third member of the Organization Committee, Mr. McAdoo and Mr. Houston began at New York on Jan. 5 a series of hearings preliminary to their main task. In the course of this inquiry, in which Mr. Williams assisted only at Atlanta on Feb. 13-14, the Committee visited 18 cities, representative of the principal sections of the country. They invited the opinions of bankers and business men on the facilities for transportation and communication, the industrial and commercial development and needs, and the established custom and course of business in each section. At the same time the Treasury Department invited the opinions of all banks applying for admission to the Federal reserve system on the location of the reserve banks, to serve both their own districts and the interests of the country at large. The formal hearings were concluded at Cleveland on Feb. 17, and on their return to Washington the Organization Committee reported "a practically unanimous conviction among bankers and business men that the currency bill will bring about the most beneficial changes in the business of the country."

The Federal Reserve Act prescribed that the Federal reserve banks should number not less than eight or more than twelve; that they should have a minimum capital of $4,000,000; and that the districts which they served should be apportioned "with due regard to the convenience and customary course of business." With 37 of the most important cities of the country in active competition for designation as the headquarters of a Federal reserve bank, the establishment of the maximum number of banks by the Organization Committee was inevitable. Under the prescriptions of the Act the task of selection and apportionment was most difficult. Territory normally tributary to the great centers of trade had to be assigned elsewhere to give other districts the requisite capital and banking preëminence. Apart from the vicinity of the chief financial centers, the chief problem of the Committee was to devise districts with reasonable regard for convenience which would yield sufficient capital for the establishment of a Federal reserve bank.

The decision of the Organization Committee was announced on April 2. The Federal reserve cities and the boundaries of the Federal reserve districts are as follows (see also XIV, *Banking and Currency*):

District No. 1.—Boston. States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

District No. 2.—New York. State of New York.

District No. 3.—Philadelphia. States of New Jersey and Delaware; Pennsylvania east of the western boundary of the counties of McKean, Elk, Clearfield, Cambria, and Bedford.

District No. 4.—Cleveland. State of Ohio; Pennsylvania west of District No. 3; Kentucky east of the western boundary of the counties of Boone, Grant, Scott, Woodford, Jessamine, Gerrard, Lincoln, Pulaski, and McCreary; the counties of Marshall, Ohio, Brooke, and Hancock in the state of West Virginia.

District No. 5.—Richmond. District of Columbia and states of Maryland, Virginia, North Carolina, South Carolina, and all of West Virginia except the four counties included in District No. 4.

District No. 6.—Atlanta. States of Alabama, Georgia, and Florida; Tennessee east of the western boundary of the counties of Stewart, Houston, Wayne, Humphreys, and Perry; Mississippi south of the northern boundary of the counties of Issaquena, Sharkey, Yazoo, Kemper, Madison, Leake, and Neshoba; Louisiana east of the western boundary of the counties of Pointe Coupee, Iberville, Assumption, and Terrebonne.

District No. 7.—Chicago. State of Iowa; Wisconsin south of the northern boundary of the counties of Vernon, Sauk, Columbia, Dodge, Washington, and Osaukee; the southern peninsula of Michigan, i. e., that part east of Lake Michigan; Illinois north of the southern boundary of the counties of Hancock, Schuyler, Cass, Sangamon, Christian, Shelby, Cumberland, and Clark; Indiana north of the southern boundary of the counties of Vigo, Clay, Owen, Monroe, Brown, Bartholomew, Jennings, Ripley, and Ohio.

District No. 8.—St. Louis. State of Arkansas; Missouri east of the western boundary of the counties of Harrison, Daviess, Caldwell, Ray, Lafayette, Johnson, Henry, St. Clair, Cedar, Dade, Lawrence, and Barry; Illinois not included in District No. 7; Indiana not included in District No. 7; Kentucky not included in District No. 4; Tennessee not included in District No. 6; Mississippi not included in District No. 6.

District No. 9.—Minneapolis. States

of Montana, North Dakota, South Dakota, and Minnesota; Wisconsin not included in district No. 7; Michigan not included in District No. 7.

District No. 10.—Kansas City. States of Kansas, Nebraska, Colorado, and Wyoming; Missouri not included in District No. 8; Oklahoma north of the southern boundary of the counties of Ellis, Dewey, Blaine, Canadian, Cleveland, Pottawatomie, Seminole, Okfuskee, McIntosh, Muskogee, and Sequoyah; New Mexico north of the southern boundary of the counties of McKinley, Sandoval, Santa Fe, San Miguel, and Union.

District No. 11.—Dallas. State of Texas; New Mexico not included in District No. 10; Oklahoma not included in District No. 10; Louisiana not included in District No. 6; the counties of Pima, Graham, Greenlee, Cochise, and Santa Cruz in the state of Arizona.

District No. 12.—San Francisco. States of California, Washington, Oregan, Idaho, Nevada, and Utah; Arizona not included in District No. 11.

President Wilson submitted to the Senate on June 15 the following nominations for the five appointive members who, with the Secretary of the Treasury and the Comptroller of the Currency *ex officio*, constitute the Federal Reserve Board: Charles S. Hamlin of Boston, Assistant Secretary of the Treasury in charge of fiscal bureaus, for a term of two years; Paul M. Warburg of New York, a member of the banking firm of Kuhn, Loeb & Co., for a term of four years; Thomas D. Jones of Chicago, a retired lawyer and a personal friend of the President, for a term of six years; W. P. G. Harding of Birmingham, Ala., president of the First National Bank of Birmingham, for a term of eight years; and Adolph C. Miller of San Francisco, Assistant Secretary of the Interior, for the full term of ten years. Each of these nominations was referred for investigation to a special subcommittee of the Committee on Banking and Currency. Those of Mr. Hamlin, Mr. Harding and Mr. Miller were approved without demur and confirmed by the Senate on July 6. But the radicals on the Committee regarded Mr. Jones and Mr. Warburg with suspicion. The objection to Mr. Jones was his connection as director with the International Harvester Company, against which the Government had pending a suit for dissolution under the Sherman Act. In a personal letter to Senator Owen on June 18 especially commending Mr. Jones to the favorable consideration of the Committee, President Wilson explained that Mr. Jones was the owner of one share of stock in the International Harvester Company, which he had purchased to qualify as a director for the purpose of assisting to withdraw the corporation from the control which led it into the alleged violations of the anti-trust laws. But Mr. Jones, summoned to appear for a personal explanation on July 6, frankly explained to the Committee that he had joined the board of the International Harvester Company in April, 1909, to oblige the president, that he approved and believed to be legal and proper all subsequent acts of the corporation, and that he was in full accord with its policy. Mr. Warburg, who was summoned for examination on his connection with certain financial transactions of Kuhn, Loeb & Co., refused on July 7 to appear, and informed the Committee that its action in withholding his nomination while reporting those of three other members of the Board had led him to request the President to withdraw his name. Mr. Warburg was persuaded by the President to allow his name to go before the Senate on condition that he would not be required to undergo cross-examination. The Committee, however, resolved on July 9 to postpone action on Mr. Warburg's nomination until he consented to appear before it. It agreed at the same time, by a vote of seven to four, on an adverse report on the nomination of Mr. Jones, which was filed by Senator Hitchcock on the 15th. Thereupon, to relieve the Administration of further embarrassment, Mr. Jones requested President Wilson to withdraw his nomination, and on July 23 the President reluctantly assented, in a letter censuring the "gross and manifest injustice" of the action of the Committee. Mr. Warburg maintained his position until the outbreak of the European War, when, at the earnest solicitation of the President, he consented to waive all personal considerations and appeared before the Committee on Aug. 1 and 3. On the 4th President Wilson nominated, in place of Mr. Jones, Frederic A. Delano of Chicago, president of the Chicago, Indianapolis & Louisville Rail-

way Co. The nominations of Mr. Warburg and Mr. Delano were favorably reported on Aug. 5 and confirmed by the Senate on the 7th. On Aug. 10 the five appointive members of the Federal Reserve Board took the oath of office and President Wilson designated Mr. Hamlin governor and Mr. Delano vice-governor. Under their direction the 12 Federal reserve banks were inaugurated on Nov. 16. The details of the organization of the system are described in another department (see XIV, *Banking and Currency*).

Foreign Relations.—The Administration encountered its most serious problem in the foreign relations of the United States. In a special conference on Jan. 26 President Wilson invited the attention of the Senate Committee on Foreign Relations to the gravity of an international situation in which the United States stood estranged, to a greater or less degree, from practically every important power in both hemispheres. With Colombia, Great Britain, Japan and Russia the United States was definitely at issue. The grievance of Colombia over the assistance of the successful revolt of Panama in 1903 (*A. Y. B.*, 1913, p. 89) remained to foster suspicion of the Latin-American policy in the South and Central American republics. In the controversy over the exemption of American coastwise vessels from payment of tolls on the Panama Canal (*A. Y. B.*, 1912, pp. 82-84; 1913, 84-86), Great Britain had the sympathy and moral support of all European maritime countries. With Japan exceedingly delicate issues were raised by the California land-tenure legislation of 1913 (*A. Y. B.*, 1913, pp. 16, 86), while with Russia the relations of the United States were entirely unregulated by treaty since the abrogation of the treaty of 1832 on Jan. 1, 1913 (*A. Y. B.*, 1912, p. 89). Over the whole situation hung the cloud of anarchy in Mexico (*A. Y. B.*, 1913, pp. 92-94, 123-125), towards which the President's policy of "watchful waiting" was becoming daily more difficult to maintain.

The great achievement of the Administration during the year was the extrication of the United States from the most pressing of these difficulties. The controversy with Great Britain was composed by the repeal of the exemption clause of the Panama Canal Act. The President's policy towards the *de facto* Huerta Government in Mexico was brought to a successful issue through a crisis which led the United States to the verge of war. A final adjustment with Colombia was advanced by the negotiation of a treaty offering full reparation for the secession of Panama (see III, *International Relations*), while the arbitration treaty with Japan was renewed (see *infra*) and measurable progress was made toward the resumption of regulated commercial relations with Russia (see III, *International Relations*).

Arbitration Treaties.—The first result of the President's appeal was the ratification of conventions for the renewal of eight general arbitration treaties, which had been allowed to lapse by limitation as follows: with Spain on June 2, 1913; with Great Britain on June 4, 1913; with Norway on June 24, 1913; with Sweden on Aug. 18, 1913; with Japan on Aug. 24, 1913; with Portugal on Nov. 14, 1913; with Switzerland on Dec. 23, 1913; and with Italy on Jan. 22, 1914. These treaties were the earliest of 25 general arbitration treaties, identical in terms, negotiated in 1908 by Elihu Root during his last year as Secretary of State. They provided that, for a period of five years:

> Differences which may arise of a legal nature or relating to the interpretation of treaties existing between the two contracting parties and which it may not have been possible to settle by diplomacy shall be referred to the Permanent Court of Arbitration established at The Hague by the convention of the 29th of July, 1899; provided, however, that they do not affect the vital interests, the independence, or the honor of the two contracting states and do not concern the interest of third parties.

Although a convention renewing a similar treaty with France was ratified early in 1913, action on the eight conventions referred to the Committee on Foreign Relations in June of that year was obstructed by the hostility of a small but powerful minority in the Senate, led by Senator O'Gorman (N. Y.) and Senator Chamberlain (Ore.), to a principle which

might commit the United States to arbitration of the issues with Great Britain and Japan. In a final attack on the treaties on Feb. 19, Senator Chamberlain offered an amendment specifically excluding from arbitration the questions of Panama Canal tolls, Japanese immigration, the right of Japanese children to attend white schools, and the Monroe Doctrine. The amendment was rejected on Feb. 20 by a vote of 40 to 13, and on the 21st the eight conventions were ratified renewing the treaties without change for a further period of five years.

Panama Canal Tolls.—While the arbitration treaties were pending in the Senate, President Wilson definitely announced his policy on Panama Canal tolls. The principle of the exemption of American coastwise shipping embodied in the Panama Canal Act of Aug. 24, 1912, was endorsed in the platform approved by the Democratic National Convention at Baltimore on July 2, 1912, six days earlier than the date of the first British note protesting against the exemption clause as a violation of the Hay-Pauncefote Treaty of 1901 (*A. Y. B.*, 1912, p. 83); and President Wilson justified the policy in its relation to competition betwen rail and water carriers in a campaign speech before a large gathering of farmers at Washington Grove, N. J., on Aug. 15, 1912, quoted in the official *Democratic Textbook* for 1912. The validity of the British protest was denied by President Taft and the Republican Administration, and with the additional prestige of specific approval by the Democratic party, the exemption was sustained in the Senate by a vote of 44 to 11 (*A. Y. B.*, 1912, p. 271). The British case, nevertheless, obtained strong non-partisan support from an influential section of the press and from small groups in both houses of Congress. Senator Root (N. Y.) and other Republicans, holding the exemption to be a violation of treaty obligations, advocated repeal to avoid certain defeat in the arbitration requested by Great Britain. Mr. Sims (Tenn.), one of the Democratic members of the House Committee on Interstate and Foreign Commerce, following the example of Senator Root (*A. Y. B.*, 1913, p. 9), introduced a bill (H. R. 1922) for the repeal of the free-tolls provision on April 8, 1913. Most of the Democratic opponents of the exemption, however, bound by the declaration of the party platform, sought to attain the same practical end by a compromise suspending the provision without repeal. A resolution (H. J. Res. 184) with this purpose was introduced in the House on Dec. 23, 1913, by Mr. Adamson (Ga.), the author of the Panama Canal Act. But President Wilson, having formed a judgment favorable to the British interpretation of the Hay-Pauncefote Treaty, declined to compromise the issue. Early in February he defined his position to the Democratic leaders, and on March 5 delivered personally to Congress a special message urging repeal of the exemption.

None of his previous communications, said the President, "carried with it graver or more far-reaching implications to the interest of the country."

> In my own judgment, very fully considered and maturely formed, that exemption constitutes a mistaken economic policy from every point of view, and is, moreover, in plain contravention of the treaty with Great Britain concerning the canal concluded on Nov. 18th, 1901. But I have not come to you to urge my personal views. I have come to state to you a fact and a situation. Whatever may be our own differences of opinion concerning this much-debated measure, its meaning is not debated outside the United States. Everywhere else the language of the treaty is given but one interpretation, and that interpretation precludes the exemption I am asking you to repeal. We consented to the treaty; its language we accepted, if we did not originate it; and we are too big, too powerful, too self-respecting a nation to interpret with too strained or refined a reading of words of our own promises just because we have power enough to give us leave to read them as we please. The large thing to do is the only thing we can afford to do, a voluntary withdrawal from a position everywhere questioned and misunderstood. We ought to reverse our action without raising the question whether we were right or wrong, and so once more deserve our reputation for generosity and the redemption of every obligation without quibble or hesitation.
>
> I ask this of you in support of the foreign policy of the Administration. I shall not know how to deal with matters of even greater delicacy and nearer consequence if you do not grant it to me in ungrudging measure.

The contest in Congress was a crucial test of the President's power over his party, no less important in its political aspects than in its bearing on foreign policy. His message attacked the merits of the exemption policy on two distinct grounds, its violation of treaty obligations and its economic inexpediency, both of which were nuclei of support for repeal. A small minority of both parties interpreted the Hay-Pauncefote Treaty to inhibit discrimination in tolls in favor of American coastwise shipping, while among the Democrats a strong element disfavored the exemption as a veiled subsidy to an interest already endowed with monopolistic privileges incompatible with fundamental Democratic doctrine. On the other hand, the great majority of the Republicans and many Democrats, among them Mr. Underwood (Ala.) and Mr. Fitzgerald (N. Y.), adhering to the interpretation of the treaty by the Taft Administration, opposed the policy of repeal as a surrender of the right of discrimination in favor of domestic commerce inherent in the sole ownership of the canal by the United States. But to most of the Democrats the critical element of the President's policy was the repudiation of a party pledge, which placed them in a political dilemma, obliged to choose between opposition to the Administration and adherence to a platform declaration approved by many of their constituents. In these circumstances the response of the party to the appeal for support of the foreign policy of the Administration was a significant demonstration of the President's strength.

The original Sims bill (H. R. 1922), simply repealing the clause: "No tolls shall be levied upon vessels engaged in the coastwise trade of the United States," in the Panama Canal Act, was favorably reported to the House on March 6, with the concurrence of 17 of the 21 members of the Committee on Interstate and Foreign Commerce. On March 9, however, Mr. Sims introduced a new bill (H. R. 14385) which proposed, besides the repeal of the exemption clause, to eliminate all authority for discrimination by amending the third sentence of the third paragraph of section 5, to read as follows, the original reading being given in brackets:

> When based upon net registered tonnage for ships of commerce the tolls shall not exceed $1.25 per net registered ton, [nor be less, other than for vessels of the United States and its citizens, than the estimated proportionate cost of the actual maintenance and operation of the canal, subject, however, etc.] nor be less than 75 cents per net registered ton, subject, however, to the provisions of article 19 of the convention between the United States and the Republic of Panama, entered into November 18, 1903.

In the House the struggle was sharp and brief. It was introduced on March 26 by the report of a special rule, proposed by Mr. Adamson on March 11, precluding amendment of the Sims bill and limiting debate to 20 hours. The opponents of repeal rallied all their forces to defeat the rule. Speaker Clark attacked it in a special statement, outspoken in opposition to the Administration, which was interpreted as the opening gun of a campaign for the Democratic nomination for President in 1916. Mr. Underwood opposed the rule on the floor of the House. But the rank and file of the Democratic party declined to follow the two leaders, both of whom were openly accused of disloyalty to the President and to Democracy. The rule was adopted on March 27 by a vote of 200 to 173, eight Republicans voting with the majority and 55 Democrats with the minority. In the debate on the bill, Mr. Underwood on March 27 and Mr. Doremus on the 30th appealed to the Democrats to sustain the party pledge and argued against repeal of the privileges of American shipping as a surrender of the right of the United States to control its own property. Mr. Knowland (Cal.) on the 28th asserted that the repeal was offered by the Administration to Great Britain in exchange for a free hand in Mexico, a charge which the President denounced as an insult. Speaker Clark concluded the debate on the 31st with a vigorous arraignment of the repeal policy, in which, however, he was careful to disclaim any hostility toward the Administration and any intention to create a schism in the Democratic party. The strength of the opposition, how-

over, waned steadily before the arguments of the President's supporters, led by Mr. Adamson, Mr. Sims and Mr. Covington. Even granting the validity of the treaty rights claimed by the United States, they pointed to the contradiction in the Democratic platform between the clause approving the exemption policy and the fundamental declaration in favor of the development of the merchant marine "without bounties or subsidies from the public treasury"; they argued that even if this contradiction did not exist, the changed conditions justified the President in repudiating the platform declaration as inconsistent with existing facts; and finally they affirmed that in any case the international situation required that the declaration be treated as an expression of opinion rather than a mandate to press a small advantage for the United States in the face of a universal protest. On March 31 the House passed the bill by a majority of 85. The vote in favor of repeal was 247, made up of 220 Democrats, 23 Republicans, three Progressives and one Independent; the minority of 162 comprised 52 Democrats, 93 Republicans and 17 Progressives.

In the Senate the lines of a close contest were drawn by opposing forces of nearly equal strength. Efforts of the President's supporters to expedite action while the Sims bill was pending in the House were frustrated by the opposition of Senator O'Gorman (N. Y.), chairman, and a majority of the Committee on Interoceanic Canals, and on April 7 the Committee decided to hold public hearings on the bill for 15 days. At the conclusion of the hearings on April 27, Senator Simmons (N. C.) submitted to the Committee, with the approval of the President, an amendment designed to win over to repeal a few Senators equally opposed to the grant of a subsidy to the shipping monopoly and to unconditional surrender to the British claim, explicitly reserving to the United States all her treaty and other rights in the Canal. Although a majority opposed repeal of the tolls exemption, the Committee decided by a vote of eight to six on April 29 to submit the question to the Senate without further delay. The Simmons proviso was approved by a similar vote, and on the 30th the amended bill was reported to the Senate without recommendation.

Six weeks of debate in the Senate added little to the argument on either side. A small minority, of whom Senator Root (N. Y.) was the most distinguished spokesman, adhered to the President's interpretation of the Hay-Pauncefote Treaty. But most of those who followed Senator Simmons (N. C.) in support of the Administration's repeal policy were not prepared to admit a violation of treaty obligations; they opposed the tolls exemption on other grounds, through a conviction of its economic inexpediency or in the interests of Democratic orthodoxy on the question of subsidies to shipping. The real contest in the Senate was over the form of the compromise amendment, which the opponents of repeal strove to make a positive and specific declaration of American rights. Finally, on June 10, the Senate approved a proviso drafted by Senator Simmons and Senator Norris (Neb.) and on the 11th (legislative day of June 5) passed the bill by a vote of 50 to 35, 37 Democrats voting with the majority and 11 in opposition. The Senate amendment provided

> That the passage of this act shall not be construed or held as a waiver or relinquishment of any right the United States may have under the treaty with Great Britain, ratified the 21st of February, 1902, or the treaty with the Republic of Panama, ratified February 26, 1904, or otherwise to discriminate in favor of its vessels by exempting the vessels of the United States or its citizens from the payment of tolls for passage through said canal, or as in any way waiving, impairing, or affecting any right of the United States under said treaties, or otherwise, with respect to the sovereignty over or the ownership, control, and management of said canal and the regulation of the conditions or charges of traffic through the same.

The House concurred in the Senate amendment on June 12 by a vote of 216 to 71, and the act was approved by the President on June 15 (Public, No. 113). Its effect on the foreign relations of the United States is discussed elsewhere (see III, *International Relations;* and XX, *The Merchant Marine*).

THE MEXICAN CRISIS

Mexican Relations.—Out of the relations between the United States and Mexico arose a crisis of potentialities more grave and far-reaching than those of any other event in the history of the country since the Spanish War. It is now four years since anarchy in Mexico became the most troublesome of the foreign problems of the United States. When Porfirio Diaz took the Presidential oath for the eighth time on Dec. 1, 1910, the rebellion of Francisco Madero was already in progress in the North, deriving much of its early strength from an anti-American sentiment inspired by the steady invasion of American capital. After the revolution achieved its purpose in the resignation and exile of President Diaz on May 25, 1911, a fair election on Oct. 1, 1911, and the orderly inauguration of Madero on Nov. 6 offered a brief promise of the restoration of stable government. But within three months the North was again in revolt under Pascual Orozco, and during 1912 the flame of revolution again spread over the greater part of the republic. In these circumstances, the United States Government faced the double obligation of preventing the use of American soil as a base of action and supplies by rebels against the legally constituted government of a friendly power, and of securing adequate protection for American citizens and the immense and diversified American interests in the revolutionary area. From the beginning of the Madero revolution the Taft Administration watched the progress of events in Mexico with anxious concern. It discharged its obligation to the Mexican Government by strengthening the neutrality laws, placing an embargo on the exportation of arms to Mexico (March 14, 1912), and enforcing its regulations by maintaining a strong military patrol on the Mexican border (*A. Y. B.*, 1912, p. 73). It strove to safeguard the interests of United States nationals by every legitimate peaceable means. In the chaos of 1912 it was inevitable that American citizens should suffer in property and person, and the outrages of the Orozco revolutionists provoked a powerful and insistent demand for armed intervention. But President Taft adopted toward the internal affairs of Mexico a policy of strict non-interference, to which he adhered patiently, in spite of grave difficulties and provocations, to the end of his term.

The Crime of Huerta.—In the last days of the Taft Administration the situation in Mexico entered a new phase. On Feb. 9, 1913, the army in Mexico City, its loyalty undermined by a conspiracy of officers headed by Gen. Victoriano Huerta and Gen. Felix Diaz, revolted against the Madero Government. President Madero and his Vice-President, Pino Suarez, after a ten-days siege of the National Palace, were arrested on Feb. 18 and on the following day forced to resign. Pedro Lascurain, Madero's Minister of Foreign Affairs, succeeded to the Presidency on Feb. 20, in accordance with the Mexican Constitution, appointed General Huerta Minister of Foreign Affairs, and immediately resigned. Huerta thus became President, provisional but constitutional, and in announcing his overthrow of the Madero Government, claimed the recognition of the United States. Early in the morning of Feb. 23, Madero and Suarez were assassinated by their military guards, in circumstances still obscure but generally believed to have been the deliberate contrivance of Huerta and his co-conspirators.

The Policy of Watchful Waiting.—Such was the posture of affairs when President Wilson was inaugurated on March 4, 1913. The attitude of his Administration toward the *de facto* Government in Mexico was promptly indicated in a formal statement on Latin-American policy issued by the President on March 11:

> Coöperation [between the peoples and leaders of America] is possible only when supported at every turn by the orderly processes of just government based upon law, not upon arbitrary or irregular force. . . . We can have no sympathy with those who seek to seize the power of government to advance their own personal interests or ambition. We are the friend of peace but we know that there can be no lasting or stable peace in such circumstances. As friends, therefore, we shall prefer those

who act in the interest of peace and honor, who protect private rights and respect the restraints of constitutional provision.

In accordance with this principle the United States refused to the provisional government of Huerta the recognition accorded by all other states save only Argentina, Brazil, Chile and Cuba.

A conference of adherents of President Madero, at Guadalupe on March 26, 1913, issued a manifesto repudiating Huerta, declaring a revolution against his government, and designating Gen. Venustiano Carranza, Governor of Coahuila, first chief of the revolutionary army. While this "Constitutionalist" revolt was gaining strength in the North, Huerta in Mexico City was striving to consolidate his power by foreign loans and fresh drafts for the army. Incensed at the attitude of President Wilson, he refused to hold official communication with the United States ambassador, Henry Lane Wilson, who was in fact out of sympathy with the policy of non-recognition. Mr. Wilson was recalled to Washington on July 16, and later in the month, President Wilson despatched to Mexico an unofficial envoy, John Lind, who bore to the Huerta Government an offer of the good offices of the United States in composing Mexico's internal strife. Mr. Lind's instructions were in the following terms:

> The Government of the United States does not feel at liberty any longer to stand inactively by while it becomes daily more and more evident that no real progress is being made toward the establishment at the City of Mexico of a government which the country will obey and respect. . . . We offer our good offices, not only because of our genuine desire to play the part of a friend, but also because we are expected by the powers of the world to act as Mexico's nearest friend.
>
> The present situation in Mexico is incompatible with the fulfillment of international obligations on the part of Mexico, with the civilized development of Mexico herself, and with the maintenance of tolerable political and economic conditions in Central America. It is upon no common occasion, therefore, that the United States offers her counsel and assistance. All America cries out for a settlement.
>
> A satisfactory settlement seems to us to be conditioned on:
>
> (*a*) An immediate cessation of fighting throughout Mexico, a definite armistice solemnly entered into and scrupulously observed.
>
> (*b*) Security given for an early and free election in which all will agree to take part.
>
> (*c*) The consent of General Huerta to bind himself not to be a candidate for election as President of the republic at this election.
>
> (*d*) The agreement of all parties to abide by the results of the election and coöperate in the most loyal way in organizing and supporting the new administration.
>
> The Government of the United States will be glad to play any part in this settlement or in its carrying out which it can play honorably and consistently with international right. It pledges itself to recognize and in every way possible and proper to assist the administration chosen and set up in Mexico in the way and on the conditions suggested. . . .

This effort of the Government of the United States to effect an arrangement for the pacification of Mexico had the moral support of several of the Governments which had already recognized Huerta. Nevertheless the Mexican Government rejected the tender of good offices on the terms proposed as impracticable and humiliating (*A. Y. B.*, 1913, p. 92). President Wilson submitted the record of Mr. Lind's mission in a special message to Congress on Aug. 27, 1913, with a new declaration of policy.

> It was our duty to offer our active assistance. It is now our duty to show what true neutrality will do to enable the people of Mexico to set their affairs in order again and wait for a further opportunity to offer our friendly counsels. . . . While we wait the contest of the rival forces will undoubtedly for a little while be sharper than ever. . . . We should earnestly urge all Americans to leave Mexico at once, and should assist them to get away in every way possible. . . . We should let every one who assumes to exercise authority in any part of Mexico know in the most unequivocal way that we shall vigilantly watch the fortunes of those Americans who cannot get away, and shall hold those responsible for their losses and sufferings to a definite reckoning. . . . For the rest, I deem it my duty to exercise the authority conferred upon me by the law of March 14, 1912, to see to it that neither side of the struggle now going on in Mexico receive any assistance from this side of the border. I shall follow the best practice of nations in the matter of neutrality by forbidding the exportation of arms or munitions of war of any kind from the United States to any part of the Republic of Mexico.

This attitude of strict neutrality, however, President Wilson soon found

it impossible to maintain. On Oct. 10, 1913, Huerta suspended the Mexican Constitution, dissolved the Chamber of Deputies and imprisoned 111 of its members, and assumed the exercise of government as a virtual dictator. He was immediately warned that the United States would not recognize the results of the elections fixed for Oct. 26, and that his *coup* had removed the last possibility of the rehabilitation of his Government in the eyes of this country. At the same time the United States notified the other powers that it would regard as binding none of Huerta's acts after Oct. 10, and that not only would Huerta not be recognized, but the influence of the United States Government would be exerted against him. In the farcical elections of Oct. 26, Huerta obtained a subservient Congress, which declared the Presidential election null and void under the Constitution and confirmed Huerta in the provisional Presidency. This was the status when President Wilson delivered his annual message to Congress on Dec. 2, 1913:

> Mexico has no government. The attempt to maintain one at the City of Mexico has broken down, and a mere military despotism has been set up, which has hardly more than the semblance of national authority. It originated in the usurpation of Victoriano Huerta, who, after a brief attempt to play the part of constitutional President, has at last cast aside even the pretense of legal right and declared himself dictator. . . . He has forfeited the respect and the moral support even of those who were at one time willing to see him succeed. Little by little he has been completely isolated. By a little every day his power and prestige are crumbling and the collapse is not far away. We shall not, I believe, be obliged to alter our policy of watchful waiting.

The Constitutionalists and the Embargo on Arms.—Meanwhile the Constitutionalist army under Gen. Francisco Villa was making rapid progress in the North. During November and December, 1913, Huerta's troops were driven in quick succession from Juarez, Chihuahua, Torreon, Saltillo, Victoria and Culiacan, and on Jan. 10 the Federal garrison of Ojinaga, 3,300 strong, evacuated the town after a week's siege and took refuge across the American border (see also XII, *The Army*). Three days later the Government at Mexico City gave its first overt sign of distress. Through the failure of the French banks to exercise their options on $50,000,000 of an $80,000,000 loan negotiated in Paris in the summer of 1913, Huerta was forced to issue a proclamation on Jan. 13 suspending for six months payment of interest on the national debt. To the domestic difficulties of his Government was thus added the pressure of the Governments whose nationals held Mexican bonds.

In these circumstances President Wilson informed the members of the Senate Committee on Foreign Relations at the conference on Jan. 26 (see *supra*) that, believing the Constitutionalists to have earned the right to fair treatment by the United States, it was his intention to raise the embargo on shipments of arms and ammunition to Mexico. Accordingly, on Feb. 3 the President issued a proclamation revoking President Taft's proclamation of March 14, 1912. The formal proclamation was accompanied by the following explanatory statement:

> The executive order under which the exportation of arms and ammunition into Mexico is forbidden was a departure from the accepted practices of neutrality—a deliberate departure from those practices under a well-considered joint resolution of Congress, determined upon in circumstances which have now ceased to exist. It was intended to discourage incipient revolts against the regularly constituted authorities of Mexico.
>
> Since that order was issued the circumstances of the case have undergone a radical change. There is now no constitutional government in Mexico; and the existence of this order hinders and delays the very thing the Government of the United States is now insisting upon, namely, that Mexico shall be left free to settle her own affairs and as soon as possible put them on a constitutional footing by her own force and counsel. The order is, therefore, rescinded.

The Government thus diplomatically achieved its purpose of strengthening the hands of the Constitutionalists without recognizing their status as belligerents. But through its avowed encouragement of the rebel cause, the Administration was soon involved in serious embarrassments by the acts of the subjects of its bounty. On its own initiative and

also at the request of the British Government, the Government impressed upon the Constitutionalist leaders the necessity of respecting the lives of foreigners. Nevertheless, on Feb. 17, a ranchman, William S. Benton, a British subject, was assassinated in Juarez in circumstances which incriminated General Villa of responsibility for the crime, if not of the actual murder. Villa affirmed that Benton had been condemned by a regular court-martial for an attack upon him at headquarters; on the other hand, a mass meeting at El Paso, Tex., on Feb. 21 adopted formal resolutions declaring that Benton's death was a case of unprovoked murder, charging the Government with encouraging the lawless rebel leaders "to commit all kinds of outrages against foreigners" and "persistently suppressing facts concerning the true conditions in Mexico," and calling upon the Government "to take such action as will maintain the honor and prestige of our country in the eyes of the world." In England the press commented bitterly on the failure of the United States Government to fulfill the obligation of assuring protection to the lives of foreigners implied in its assumption of exclusive police jurisdiction over Latin America. The British Government represented to the Department of State that while the United States Government could not be held responsible for Villa's acts, public opinion in Europe was likely to be seriously affected by the killing of Benton. On these representations the Administration undertook a thorough investigation of the facts. It demanded of Villa the exhumation of Benton's body for examination by an impartial Anglo-American commission, and after a defiant denial Villa was finally driven to a reluctant consent. But on Feb. 28, General Carranza, as head of the Constitutionalist Government, informed the Government at Washington that it was for Great Britain and not the United States to deal with him in matters concerning British subjects, and intimated further that all communications on international affairs should be addressed to him directly and not to his subordinates. While the Administration sought a means of pursuing the Benton investigation without the official recognition implied in Carranza's note, Sir Edward Grey declared in the British House of Commons on March 3 that if Great Britain failed to secure satisfaction through the United States, the British Government reserved to itself the right to seek reparation whenever any change of circumstances should permit. The efforts of the Administration to persuade Carranza to alter his attitude on the Benton inquiry failed utterly. Early in March, however, he yielded so far to the representations of the United States as to appoint a commission of his own, which reported on April 5 that the rancher was slain by Rodolfo Fierro, a rebel major, 32 miles south of Juarez, his body buried at Salmalayuca and later exhumed at Villa's orders and transported to Chihuahua. The story of the court-martial was invented as the easiest way out of the embarrassment of the concern of the United States.

This incident was scarcely closed when another arose. On April 6, four days after the capture of the strategic city of Torreon, Villa ordered the expulsion of all Spaniards from the territory controlled by the Constitutionalists. Spain at once requested British aid for her nationals, through the commander of the cruiser *Hermione* at Tampico, and on April 7 the United States lodged with Carranza a vigorous protest against the order. This issue, however, was soon overshadowed by larger events, in which the Constitutionalists as well as the United States had a vital interest.

In Congress and in the country, meanwhile, the policy of the Administration was under bitter arraignment. The silence of Congress on Mexican relations was broken in the House of Representatives by Mr. Ainey (Pa.) on Feb. 25 and Mr. Kahn (Cal.) and Mr. Mondell (Wyo.) on the two following days, in criticism of the policy of "deadly drifting" toward armed intervention and the condonation of the barbarities of the Constitutionalists. Mr. Bryan prevailed upon the House Committee on Foreign Affairs to suppress a resolution offered by Mr. Ainey calling upon the President for all information in his possession

regarding the safety of foreigners in Mexico. But Carranza's defiance inspired a new outbreak of criticism in the Senate. Senator Works (Cal.) on March 6 assailed the "cowardly" procedure of the Administration in the Benton case, and on the 9th Senator Falls (N. M.) gave a list of 79 British and American citizens murdered in Mexico since June, 1911, most of them under the Constitutionalist régime, and demanded the use of the American Army and Navy to protect American citizens. In Texas new complications arose. Governor Colquitt enforced a formal protest to the Administration on the lack of protection to American citizens with a threat of the employment of state troops. On March 8, relatives of Clemente Vergara, a Texas rancher murdered by Mexican Federal soldiers, entered Mexico, exhumed the body in Hildalgo cemetery and brought it across the Rio Grande. A report that Texas Rangers had taken part in the raid was quickly shown to be false, but to guard against the possibility of aggressive acts, President Wilson on March 11 ordered the Border patrol raised to a strength of 6,800 men by the addition of two new regiments of infantry, bringing the total force in Texas to 18,000. At the same time the Administration took its most positive action in connection with the killing of an American citizen by instructing Nelson O'Shaughnessy, chargé d'affaires at Mexico City, to demand of the Huerta Government the punishment of Vergara's slayers.

The restraint of the official reception in Mexico City of the raising of the embargo on arms could not conceal a growing hostility to the United States. The sentiment of nationalism indicated by isolated incidents of assault and insult of Americans Huerta endeavored to foster to the advantage of his own position by various petty acts designed to appeal to this *quasi* patriotism which involved the American chargé d'affaires in continual protest. But Huerta's position was becoming daily more precarious. The Huertistas were able to make no progress against the steady advance of the Constitutionalists. On April 2 Villa captured Torreon and a week later advanced to the attack of Tampico.

The Tampico Incident.—On Thursday, April 9, a paymaster of the U. S. S. *Dolphin* with a boat's crew of nine bluejackets landed for supplies at the Iturbide Bridge landing at Tampico, a point within the Federal lines and zone of operations. While engaged in loading the boat they were arrested by the Mexican officer commanding in that vicinity, Col. Raymond Hinojosa, and marched into the city under an armed guard. Two of the men, all of whom were in uniform but unarmed, were taken from the boat, which flew the American flag at bow and stern. At a short distance from the harbor front a superior Mexican officer met the party and ordered Colonel Hinojosa to return with his prisoners to the landing and await further orders. The American consul immediately protested to Gen. Ignacio Zaragoza, the Federal commandant. Within an hour and a half of the arrest, General Zaragosa ordered the release of the paymaster and his men, imprisoned Colonel Hinojosa, and sent an apology for the arrest to Rear-Adm. Henry T. Mayo, commanding the naval squadron at Tampico. President Huerta likewise expressed regret for the incident to Mr. O'Shaughnessy, at Mexico City.

But Admiral Mayo considered the affront too serious to be expunged by mere expressions of regret. He sent General Zaragosa a demand for reparation in the following terms:

> I do not need to tell you that taking men from a boat, flying the United States flag, is hostile act not to be excused.
>
> I have already received your verbal message of regret that this event has happened and your statement that it was committed by an ignorant officer.
>
> The responsibility for hostile act cannot be avoided by the plea of ignorance.
>
> In view of the publicity of this occurrence, I must require that you send by suitable members of your staff formal disavowal and apology for the act, together with your assurance that the officer responsible for it will receive severe punishment; also that you publicly hoist the United States flag in a prominent position on shore and salute it with twenty-one guns. The salute will be returned by this ship.
>
> Your answer to this communication should reach me and the called-for salute be fired within twenty-four hours from 6 p. m. of this date.

With unexpected firmness the Administration at Washington support-

ed Admiral Mayo's demand and instructed Mr. O'Shaughnessy to insist on complete compliance with its terms, with the exception of the time limit, which was tacitly extended to permit the necessary diplomatic exchanges at Mexico City. The Mexican Foreign Office urged that martial law obtained at the time at Tampico; that orders had been issued that no one should be allowed to land at the Iturbide Bridge; that the American marines, landing without permission, had been arrested through the overzealousness of a subordinate officer acting under definite instructions; and that in these circumstances the immediate liberation of the marines by General Zaragosa, his apology, and the regrets and promise of full investigation of the Mexican Government were sufficient reparation. On April 12, nevertheless, the Mexican Government agreed in principle to grant the satisfaction demanded. But in the subsequent discussion of the details of the salute it introduced proposals for the amelioration of Admiral Mayo's terms which the United States declined to accept, and on the 14th José Portillo y Rojas, the Foreign Minister, informed Mr. O'Shaughnessy that the Mexican Government declined to honor the American flag with a salute, in a note which asserted that President Huerta, convinced that in the circumstances such a salute would be degrading to the sovereignty of Mexico, was determined to uphold the honor and sovereignty of Mexico at any cost.

There were then nine United States naval vessels on the east coast of Mexico: a battleship and a transport with 600 marines from the Canal Zone at Vera Cruz under Rear-Adm. F. F. Fletcher, and three battleships, three cruisers and a dispatch boat at Tampico under Admiral Mayo. On the receipt of Huerta's defiance on April 14, President Wilson, after a meeting of the full Cabinet, ordered to Tampico the whole of the active North Atlantic fleet under Rear-Adm. Chas. J. Badger, comprising seven battleships, two gunboats, a transport with 950 marines, and a fleet of auxiliary vessels; and on the following day the Pacific fleet was ordered to concentrate in Mexican waters. In the event of a final refusal of reparation for the Tampico incident, the President explained to representatives of the Senate Committee on Foreign Relations and the House Committee on Foreign Affairs, it was intended that the fleet should seize Vera Cruz and Tampico and ports on the west coast and establish a pacific blockade of both coasts until such time as the honor of the United States should be satisfied through compliance with Admiral Mayo's demands. Both Committees unanimously sustained the Administration's programme of action.

These evidences of President Wilson's determination caused Huerta to reconsider his defiance. On April 15 he submitted the demands of the United States to an executive session of the Mexican Senate, and on the following day the Mexican Government agreed a second time to fire the salute in accordance with Admiral Mayo's stipulations, the United States Government voluntarily engaging to return the salute as a matter of invariable international courtesy, without prejudice to its attitude on the recognition of Huerta as President of Mexico. But having gone so far, the Mexican Government again sought to avoid unconditional compliance. It put forward a demand that the salutes to the American and Mexican flags should be fired reciprocally and simultaneously. It insisted on this condition notwithstanding the positive refusal of the United States Government to modify its original terms, and at noon on Saturday, April 18, President Wilson sent an ultimatum to Huerta, that if his intention to comply with Admiral Mayo's demand was not announced by six o'clock the following evening, Congress would be asked on Monday for authority to take all necessary steps to enforce respect for the American flag. The Mexican Government made a final offer of compliance on condition that the United States sign a formal protocol providing for a return of the salute, and with its rejection the negotiations ended. On the 19th additional naval vessels were ordered to Tampico, raising the naval force in or *en route* for Mexican waters to 52 vessels and 22,775 men, of whom 17,-

860 men were available for operations on the Gulf coast.

The Crisis in Congress.—The President's message, delivered in person at 3 p.m. on Monday, April 20, after setting forth the facts of the Tampico incident, continued:

> The incident cannot be regarded as a trivial one, especially as two of the men arrested were taken from the boat itself—that is to say, from the territory of the United States; but had it stood by itself, it might have been attributed to the ignorance or arrogance of a single officer.
>
> Unfortunately, it was not an isolated case. A series of incidents have recently occurred which cannot but create the impression that the representatives of General Huerta were willing to go out of their way to show disregard for the dignity and rights of this Government, and felt perfectly safe in doing what they pleased, making free to show in many ways their irritation and contempt.
>
> A few days after the incident at Tampico an orderly from the U. S. S. *Minnesota* was arrested at Vera Cruz while ashore in uniform to obtain the ship's mail, and was for a time thrown into jail. An official dispatch from this Government to its embassy at Mexico City was withheld by the authorities of the telegraphic service until peremptorily demanded by our chargé d'affaires in person.
>
> So far as I can learn, such wrongs and annoyances have been suffered to occur only against representatives of the United States. I have heard of no complaints from other Governments of similar treatment. Subsequent explanations and formal apologies did not and could not alter the popular impression, which it is possible it had been the object of the Huertista authorities to create, that the Government of the United States was being singled out, and might be singled out with impunity, for slights and affronts in retaliation for its refusal to recognize the pretensions of General Huerta to be regarded as the constitutional Provisional President of the Republic of Mexico.
>
> The manifest danger of such a situation was that such offenses might grow from bad to worse until something happened of so gross and intolerable a sort as to lead directly and inevitably to armed conflict. It was necessary that the apologies of General Huerta and his representatives should go much further, and that they should be such as to attract the attention of the whole population to their significance, and such as to impress upon General Huerta himself the necessity of seeing to it that no further occasion for explanations and professed regrets should arise. I, therefore, felt it my duty to sustain Admiral Mayo in the whole of his demand and to insist that the flag of the United States should be saluted in such a way as to indicate a new spirit and attitude on the part of the Huertistas.
>
> Such a salute General Huerta has refused, and I have come to ask your approval and support in the course I now purpose to pursue.
>
> This Government can, I earnestly hope, in no circumstances be forced into war with the people of Mexico. . . . If armed conflict should unhappily come as a result of his attitude of personal resentment toward this Government, we should be fighting only General Huerta and those who adhere to him and give him their support, and our object would be only to restore to the people of the distracted republic the opportunity to set up again their own laws and their own Government.
>
> The people of Mexico are entitled to settle their own domestic affairs in their own way, and we sincerely desire to respect their right. The present situation need have none of the grave complications of interference if we deal with it promptly, firmly, and wisely. . . . I therefore come to ask your approval that I should use the armed forces of the United States in such ways and to such an extent as may be necessary to obtain from General Huerta and his adherents the fullest recognition of the rights and dignity of the United States, even amid the distressing conditions now unhappily obtaining in Mexico.

Immediately after the reading of the President's Message Mr. Flood (Va.) introduced in the House the following resolution (H. Res. 251):

> Resolved, by the Senate and House of Representatives, in Congress assembled, that the President of the United States of America is justified in the employment of armed forces of the United States to enforce the demands made upon Victoriano Huerta for unequivocal amends to the Government of the United States for affronts and indignities committed against this Government by General Huerta and his representatives.

Against the protests of a small band of Representatives led by the Republican floor leader Mr. Mann, and including all those who had assailed the President's policy toward the Constitutionalists on the floor of Congress, that the resolution was a declaration of war on a trivial pretext against a single individual, the House adopted the resolution at 9:30 o'clock on Monday evening, after four hours of stormy debate, by a vote of 337 to 37, the minority comprising 29 Republicans, five Democrats, two Progressives and one Independent.

Shortly after midnight on Tuesday morning the Senate Committee on Foreign Relations reported to the Senate the following substitute resolution, from which specific mention of Huerta was eliminated:

In view of the facts presented by the President of the United States in his address delivered to the Congress in joint session on the 20th day of April, 1914, with regard to certain affronts and indignities committed against the United States in Mexico;

Resolved, That the President is justified in the employment of the armed forces of the United States to enforce the demand for unequivocal amends for affronts and indignities committed against the United States; be it further

Resolved, That the United States disclaims any hostility to the Mexican people or any purpose to make war upon them.

This resolution was studiously drafted, as was the House resolution and the President's message, to avoid offense of any sort to the Constitutionalists and to place wholly upon the *de facto* Government of Huerta the onus of forcible measures in Mexico. Senator Lodge (Mass.) offered in amendment a substitute preamble setting forth all the grounds for armed intervention:

That the state of unrestrained violence and anarchy which exists in Mexico, the numerous unchecked and unpunished murders of American citizens, and the spoliation of their property in that country, the impossibility of securing protection or redress by diplomatic methods in the absence of lawful or effective authority, the inability of Mexico to discharge its international obligations, the unprovoked insults and indignities inflicted upon the flag and the uniform of the United States by the armed forces in occupation of large parts of Mexican territory, have become intolerable.

That the self-respect and dignity of the United States and the duty to protect its citizens and its international rights require that such a course be followed in Mexico by our Government as to compel respect and observance of its rights.

Over the Lodge amendment the Senate battled through a session which lasted from noon on Tuesday to 3:30 o'clock on Wednesday morning. In support of Senator Lodge Senator Root (N. Y.) pleaded with the Senate to adopt the substitute preamble, not to face a crisis of unknown possibilities on the flimsy and inadequate ground of the President's message, but to declare the full justification of the United States in the sacrifice of American lives and the destruction of American property in the anarchy lying behind the insult to the flag at Tampico. But after a memorable debate, the Lodge preamble was rejected by a vote of 47 to 36, and the resolution of the Committee on Foreign Relations prevailed by a vote of 72 to 13. It was concurred in by the House on Wednesday morning without a roll-call and signed by the President in the early afternoon.

The Occupation of Vera Cruz.—But while the Senate debated the form of the resolution, Vera Cruz was already occupied. The Administration was forced to act without the formal authorization of Congress by the arrival in Mexican waters of the Hamburg-American liner *Ypiranga*, for Vera Cruz out of Hamburg with a cargo of 10,000 rifles, several machine guns and 15,000,000 rounds of ammunition consigned to the Mexican Government. To prevent these munitions from reaching General Huerta, in a state short of actual war, only one course was open which avoided the possibility of international complications through the detention of a vessel of a friendly power. In accordance with a prearranged plan, Admiral Fletcher was ordered at four o'clock on the morning of the 21st to occupy the Custom House at Vera Cruz. A formal demand for the surrender of the port on Gen. Gustavo Maass, the Mexican commandant, was refused, and at 11 o'clock Admiral Fletcher began the landing of marines. By noon a force of a thousand men were in possession of the principal buildings in the lower part of the city. The Mexicans, who during the first hour had offered no resistance of any kind, then began a desultory attack on the invaders, and shortly after noon the garrison of 800 men left the barracks and occupied several protected positions in the central portion of the town. Aided by civilians on house tops and in buildings, they kept up a brisk fire on the American force, and although the Mexicans were forced to retreat from some of their positions by machine guns and shells from the gunboat *Prairie*, the marines were under almost continual fire throughout the night. On Wednesday morning, Admiral Badger, who arrived during the night with five battleships, ordered a large additional force ashore. Under cover of a bombardment by the guns of the *Prairie*,

Chester and *San Francisco*, the Americans advanced through the city, fighting their way from street to street against a stubborn resistance by concealed sharpshooters, and by noon the occupation was complete. The casualties of the naval force in the two days of fighting were eight killed and 25 wounded. On the Mexican side 126 were killed and 195 wounded.

With the occupation of Vera Cruz the Administration halted its aggressive programme. The bloodshed with which the first step of the hostilities without war had been won revealed clearly the great danger that American intervention would involve the United States in a long and costly struggle. Still more deterrent was the reply of Carranza to a message from Mr. Bryan announcing the seizure of Vera Cruz and pointedly suggesting that the Constitutionalists allow the United States a free hand in Mexico. The First Chief addressed a note to President Wilson on April 22 protesting against the "violation of national sovereignty" in this action against a usurper incompetent to receive a demand for reparation or to grant satisfaction on behalf of the Mexican people. As the interpreter of "the sentiment of a great majority of the Mexican people," he called upon President Wilson to suspend the hostile acts already initiated, to evacuate Vera Cruz, and to formulate the demand for reparation for the Tampico incident to the Constitutionalist Government. At the risk of a complete break with his chief, Villa labored with Carranza to modify his attitude and on April 28 persuaded him not to oppose the action of the United States so long as Constitutionalist territory was not invaded. The embargo on arms at the border, however, was restored on April 23 without the formality of a proclamation.

The Administration meanwhile awaited with suspense the rejoinder of the Mexican Government to the seizure of Vera Cruz. On the morning of President Wilson's address to Congress, General Huerta issued a statement offering guarantees to all foreigners, Americans included, in Mexico. A special guard was established at the American Embassy in Mexico City. But on the news of the American invasion, the safety of Americans was threatened by riots in Tampico, Monterey and a score of other towns. The Mexicans retreating westward from Vera Cruz cut the direct rail and wire communications with Mexico City, and the fate of the Americans in the capital were unknown for two days. On April 23 the Mexican chargé d'affaires at Washington demanded his passports, and the Mexican Foreign Minister handed Mr. O'Shaughnessy his passports with a note which practically declared a state of war:

> According to international law, the acts of the armed forces of the United States, which I do not care to qualify in this note out of deference to the fact that your honor personally has observed toward the Mexican people and Government a most strictly correct conduct, so far as has been possible to you in your character as the representative of a Government with which such serious difficulties as those existing have arisen, must be considered as an initiation of war against Mexico.

Mr. O'Shaughnessy entrusted American interests to Sir Lionel Carden, the British Ambassador, and left Mexico City the same evening on a special train bearing over 300 English-speaking refugees, about half of them Americans, whom the Mexican authorities were unable to distinguish from the English. All known Americans were detained as virtual hostages by Huerta's orders, based upon false information that noncombatants were being prevented from leaving Vera Cruz. On the representations of the British Embassy that Mexicans were being transported from Vera Cruz as fast as the two old locomotives in American hands could handle the trains of refugees, Huerta revoked his order on April 26, and from the following day a constant stream of Americans flowed to the coast. At Laredo, Tex., on April 24 several Mexican Federal soldiers attempting to blow up the international railway bridge were shot and killed by American troops. But apart from this incident the hostilities generally believed to be imminent did not occur.

The Administration, indeed, studiously avoided any further action which could be construed as an act of war. Nevertheless it continued to prepare against all eventualities.

Congress enacted on April 20 the Volunteer Army bill passed by the House in December, 1913 (see *supra*), and on the 22d the House added to the Army Appropriation bill an appropriation of $5,300,000 immediately available for military purposes. The Navy Department on the 22d ordered three additional battleships to Vera Cruz and began the formation of an additional special service squadron of two battleships and 14 cruisers under Rear-Adm. C. McR. Winslow for service in Mexican waters. On April 24 the Army moved to reinforce the Navy at Vera Cruz. The Fifth infantry brigade (see XII, *The Army*) under Brig.-Gen. Frederick Funston sailed from Galveston and two detachments of coast artillery from New York. The 6th cavalry followed from Galveston on the 28th, bringing the total military expeditionary force to about 5,500 men.

The position of the Navy at Vera Cruz was indeed dangerous. General Maass was reported to be concentrating an army of 16,000 men a short distance away, and the 5,400 marines on shore were practically unsupported, except by the guns of the warships, in case of attack by superior force. On April 23 Admiral Fletcher placed outposts in the hills commanding the approaches to the city, and on the following day moved a strong force to protect the water-supply station at Tezar. By the 26th a ring of entrenchments was established at a distance of eight miles from the city, held by a force of 2,500 marines. Within the town the municipal authorities had abandoned their functions. Snipers continued to fire upon the Americans at every opportunity, and on April 26, when the casualties had reached 19 killed and nearly 70 wounded, Admiral Fletcher placed the town under martial law and required the inhabitants to surrender their arms. Under the direction of naval officers the public utilities were restored and sanitary conditions reëstablished. On the arrival of the troops on April 27 General Funston found the municipal administration completely organized. On April 30 the troops landed, authority was formally transferred to the Army, and the marines were withdrawn to the ships.

Mediation. — But before General Funston reached Vera Cruz agencies of peace were already in operation. On April 25 the Governments of Argentina, Brazil and Chile, through their representatives in Washington, tendered their good offices to the United States and Mexico (see III, *International Relations*). Mr. Bryan at once accepted the offer on behalf of the United States in a note which extended the scope of the mediation over the whole Mexican situation by stipulating the concurrence of the Constitutionalists. Under the urging of the ambassadors of Great Britain, Germany and France, whose influence was solicited by the United States, Huerta formally accepted mediation in principle without conditions on April 27; and on the following day Carranza likewise accepted the offer, reserving the right to enter into details.

Thus, when the United States was to all appearances on the brink of war, negotiations were initiated which, after weeks of uncertainty, established a basis of peace. At the outset the course of the Administration in accepting mediation after its decisive action at Vera Cruz was harshly attacked in Congress and in a section of the press. At the end the critics of the President's policy were silenced by the triumph of his efforts for the avoidance of war. For this issue of the Mexican adventure the whole country united in gratitude, although it has never fully understood the motives which impelled the Administration to embark on an undertaking so full of danger and so utterly barren of advantage, even the small satisfaction of the salute to the flag which the expedition set out to enforce and on which its official justification still rests.

The history of the mediation conference and of the internal events in Mexico which led to the resignation of Huerta in July is given in other departments (see III, *International Relations;* and IV, *Mexico*).

The Withdrawal from Vera Cruz.— Under the terms of an armistice arranged with Huerta on April 30, the American troops remained in undisputed possession of Vera Cruz through the deliberations of the mediation con-

ference at Niagara Falls, the advance of the Constitutionalists which finally forced the abdication of Huerta on July 15, and the entry of Carranza into the capital on Aug. 20. On Sept. 15 President Wilson ordered the withdrawal of the troops from Vera Cruz, "in view of the entire removal of the circumstances that were thought to justify the occupation." But the victorious Constitutionalists were unable to adjust their internal dissensions without resort to arms (see IV, *Latin America*), and the troops remained in Vera Cruz for another ten weeks while the enmity between Carranza and Villa again disrupted the government into two warring factions. The Administration at Washington, however, required as a condition of evacuation only an assurance of the safety of all persons remaining in Vera Cruz and of the protection from double taxation of those who had paid taxes and customs to officers of the United States. Satisfactory guarantees were eventually secured from both Carranza and the convention of Constitutionalist chiefs controlled by Villa at Aguascalientes, and on Nov. 23, after an occupation of 217 days, General Funston abandoned Vera Cruz without formal transfer of the city to either Mexican faction.

THE EUROPEAN WAR IN AMERICA

The Reaction on the United States.—Since the beginning of August, Europe has been convulsed by the most stupendous war in history, the causes and course of which are described in other parts of this volume (see III, *International Relations;* IV, *The European War*). For its profound reaction on the United States the country was wholly unprepared. Previous incidents of international tension among the European powers had excited vague apprehension of a general conflict, but the recognition of the possibility inspired no prevision of its consequences. Thus, the cataclysm of August threw upon American finance, commerce and diplomacy a sudden stress of great and untried problems which tested their soundness to the utmost. These problems have been met promptly and successfully, not without internal difficulties and local distress, but in a manner which has placed the United States, the greatest of the neutral nations, in an impregnable position.

The Financial and Commercial Crisis.—To the United States the first and most serious effect of the war was the complete collapse of the intricate mechanism of international finance and trade. On the presentation of Austria-Hungary's ultimatum to Servia on July 23, European investors, particularly those with foreign holdings, overwhelmed the stock markets of the world with a flood of securities which converged first on Paris, then on London, and finally on New York. European bankers at the same time recalled, in the form of gold, all their credit balances in foreign markets. The Paris Bourse succumbed under the violent liquidation from other markets on Tuesday, July 28. The London Stock Exchange on the following day, then practically the only great European market in operation, restricted trading to non-speculative transactions, but it withstood the tremendous pressure from the Continent and the formidable withdrawals of gold only two days and suspended operations altogether on the morning of Friday, the 31st. The closing of the London Exchange exposed the New York market to the full force of the European selling movement, which had already placed it under an enormous strain. On receipt of the news from London shortly before the opening hour on the 31st, the governors of the New York Stock Exchange declared the Exchange closed and all deliveries suspended indefinitely, a procedure unknown since 1873. All the other stock exchanges of the country at once took similar action.

There followed immediately, even before the declaration of war by Great Britain on Aug. 4, a complete blockade of international credit. Merchandise trade, its fundamental basis, first depressed by the uncertainty of collections, was paralyzed by the danger to shipping involved in hostilities among the great marine carriers. London, the world's clearing house, holding huge sums of bills of ex-

change now uncovered by merchandise due to arrive, was forced to adopt extraordinary protective measures. Parliament on the 2d declared a moratorium on bills of exchange which was extended on the 6th over settlements of indebtedness generally, an emergency expedient never before resorted to in England under the modern organization of finance and commerce. The French Government likewise decreed a general moratorium on Aug. 2, and the Russian Government authorized a similar measure a day or two later. In these extraordinary complications of credit American finance was inevitably deeply involved. American bankers also held immense sums in uncovered foreign bills, and the demand for gold was as insistent in New York as in London. In the last ten days of July, after withdrawals of $50,000,000 the preceding month, $45,000,000 of gold was engaged for shipment to Europe, and our gold supply was seriously threatened until the breakdown of the facilities of foreign exchange.

The Government and the New York banks took prompt and sagacious action to avert the danger of panic. The Treasury Department announced on July 31 that the $500,000,000 of emergency bank-note currency authorized by the Aldrich-Vreeland Act of May 30, 1908, was ready for distribution, and Congress amended the Federal Reserve Act to increase the amount available to approximately $1,000,000,000 (see *infra*). On Aug. 3 also the New York Clearing House authorized the issue of clearing-house loan certificates in settlement of the differences between bankers. Under these and other emergency measures calm was restored in American finance by the end of the first week of August. There remained the disorganization of foreign exchange, which was practically suspended, the rate rising as high as $7 per pound sterling; and the interruption of foreign trade. As Great Britain demonstrated her control of the sea, commerce gradually resumed its normal course to the markets of neutral nations and the Allies of the Triple Entente. But the tedious and laborious task of repairing the shattered machinery of finance and trade is still incomplete, albeit the mechanism now runs with an approach to its former smoothness. The full extent of the destruction of the European War and process of restoration are described in other parts of this volume (see XIII, *Economic Conditions;* XIV, *Banking and Currency;* XIX, *Manufactures;* and XX, *Trade, Transportation, and Communication*). It is necessary to discuss here only the manner in which the Government at Washington has dealt with the special problems created by the war.

Emergency Currency. — Congress acted first to extend the amount and availability of emergency circulation. The Aldrich-Vreeland Act of May 30, 1908, authorized the issue of $500,000,000 in emergency currency on the security of commercial paper or securities, to national banks having circulating notes outstanding secured by the deposit of bonds of the United States to an amount not less than 40 per cent. of their capital stock. On the recommendation of the Treasury Department, the Senate on July 31 passed a bill (S. 6192) in amendment of Section 27 of the Federal Reserve Act, which extended the provisions of the Aldrich-Vreeland Act to June 30, 1915, empowering the Secretary of the Treasury to suspend this limitation, under which many banks were excluded from the emergency-currency privilege. The House on Aug. 3 added provisions authorizing the Secretary of the Treasury to waive also the limitation of the aggregate amount of emergency circulation, and extending the privilege to state banks and trust companies already members of the Federal reserve system or contracting to join within 15 days of the passage of the Act. The Senate, however, dissented from the unlimited authorization of emergency currency in the discretion of the Secretary of the Treasury, and in conference a limit was fixed at 125 per cent. of the capital and surplus of the banks, while a further provision was added requiring all banks to whom emergency circulation was issued to maintain on deposit in the Treasury in gold a redemption fund of not less than five per cent. The President signed the bill on Aug. 4 (Public, No. 163).

The Merchant Marine.—The interruption of foreign trade by the sud-

den withdrawal of the carriers of belligerent powers inspired Congress to legislation immediately to remedy the lack of shipping facilities and eventually to build up an adequate American merchant marine. The Panama Canal Act of Aug. 24, 1912, provided for the admission to American registry of foreign-built vessels not over five years old at the time of application, owned wholly by American citizens or American corporations, to engage exclusively in the foreign trade (*A. Y. B.*, 1912, p. 525). The House on Aug. 3 passed a bill (H. R. 18202), introduced by Mr. Alexander, which amended Section 5 of the Panama Canal Act by removing the restriction as to the age of admissible vessels; it further authorized the President in his discretion to suspend the provisions of law prescribing that all watch officers of American vessels in the foreign trade shall be citizens of the United States, and likewise the requirement of survey, inspection and measurement by officers of the United States of foreign vessels admitted to American registry. The Senate passed the bill on Aug. 17. The President signed the measure on the following day (Public, No. 175), and on Sept. 5 exercised by executive order his discretionary powers to suspend for two years the specified provisions of the navigation laws.

The Proposed Government Steamship Line.—To provide further shipping facilities for export of grain and other commodities, the President in conference with Democratic leaders in Congress on Aug. 19 approved a plan for the purchase of an adequate number of ships by the Government and their operation by a corporation under government control. An Administration bill (H. R. 18518) for this purpose was introduced in the House by Mr. Alexander on Aug. 24. It authorized the Government to subscribe to not less than 51 per cent. of the capital stock of a $10,000,000 company to be organized and incorporated to purchase, equip, maintain and operate vessels in the foreign trade under the supervision of a shipping board composed of the President, the Postmaster-General and the Secretaries of the Treasury and Commerce; it further authorized the issue of not more than $30,000,000 of Panama Canal bonds to provide funds for the purchase of ships, with the proviso that naval vessels and vessels controlled by the Panama Railroad Co. available for the merchant trade should be turned over to the company and that ships purchased should be available as naval auxiliaries. Great Britain and France at once entered informal protests against the proposal, which was understood to contemplate the purchase of the vessels of the German merchant fleet blockaded in Atlantic ports, on the ground that the purchase of a large number of ships of a belligerent would be tantamount to the extension of important financial assistance. It appeared, moreover, within the next few weeks that sufficient ships were offered to move the export cargoes and that private capital stood ready to enter them under the American flag as fast as the opportunity of profitable investment arose. Congress took no action on the bill during the remaining two months of the session, convinced apparently of the inexpediency of the project, not only in its economic aspects but in its possibilities of troublesome international complications in the uncertainties of the rules of contraband (see III, *International Relations*). Nevertheless, President Wilson advocated the policy as sound and desirable and took occasion to urge it strongly upon Congress in his annual message of Dec. 8 (see also *infra*).

> To correct the many mistakes by which we have discouraged and all but destroyed the merchant marine of the country . . . would take a long time and involve many detailed items of legislation, and the trade which we ought immediately to handle would disappear or find other channels while we debated the items. . . . Therefore I propose another way of providing the means of Transportation, which must precede, not tardily follow, the development of our trade with our neighbor states of America. It may seem a reversal of the natural order of things, but it is true, that the routes of trade must be actually opened—by many ships and regular sailings and moderate charges—before streams of merchandise will flow freely and profitably through them. Hence the pending shipping bill, discussed at the last session but as yet passed by neither house. In my judgment such legislation is imperatively needed and cannot wisely be postponed. . . . It is not a question of the Government monopolizing the

field. It should take action to make it certain that transportation at reasonable rates will be promptly provided, even when the carriage is not at first profitable; and then, when the carriage has become sufficiently profitable to attract and engage private capital, and engage it in abundance, the Government ought to withdraw.

An Administration bill similar to the Alexander bill but carrying a provision permitting the lease of government-owned ships to private corporations was introduced in the Senate on Dec. 9 and favorably reported on the 16th, but at the close of the year the bill had been passed by neither house of Congress.

War Risk Insurance.—A conference of prominent bankers, shippers, shipowners and members of the Federal Reserve Board held at the invitation of the Treasury Department in Washington on Aug. 14 adopted resolutions emphasizing the necessity of providing means for the transportation of grain, cotton and merchandise abroad, and urging the Government to establish a system of war-risk insurance to enable American vessels and American cargoes shipped therein to compete on equal terms with foreign carriers (British, French and Belgian) protected by government guaranty of war indemnity. The Senate on Aug. 21 passed a bill (S. 6357) creating for this purpose a temporary Bureau of War Risks in the Treasury Department, with an appropriation of $5,000,000, empowered to accept risks on American vessels and cargoes and fix premium rates therefor. The House passed the bill on Aug. 29 with an amendment limiting its operation to two years, and it was signed by the President on Sept. 2. William C. DeLanoy, of the insurance firm of DeLanoy & DeLanoy of New York, was appointed director of the Bureau, which began operations late in September.

War Revenue.—The disorganization of foreign trade caused a severe temporary decline in customs revenue, the deficit in August, compared with August, 1913, amounting to $10,629,538. President Wilson addressed a special message to Congress on Sept. 4 urging immediate provision for the raising of $100,000,000 of additional revenue through internal taxes; new revenue must be found, he urged, to avoid the withdrawal of the Treasury balance on deposit in national banks, and it must be sought in new sources of taxation to avoid the untimely and unnecessary expedient of a bond issue which would withdraw working capital from other uses to pay the Government's bills. The Democratic members of the House Committee on Ways and Means drafted a bill for this purpose levying a tax on freight transportation bills and increasing the taxes on beer and sweet wines. The rank and file of the House Democrats, however, revolted against the proposed freight tax in such strength that a Democratic caucus on Sept. 14 abandoned the original measure and directed the drafting of a substitute embodying the Spanish War stamp tax on commercial and legal papers, the Spanish War taxes on bankers, brokers, theaters and other amusement places, a tax on gasoline, and special taxes on tobacco manufacturers and dealers, domestic wines and beers. The new bill (H. R. 18891) was introduced by Mr. Underwood on Sept. 21. After a stubborn fight, the course of which is outlined on another page (see XIV, *Public Finance*), the measure was finally altered to a form acceptable to both houses and received the President's signature on Oct. 22 (Public, No. 217).

Relief of American Tourists.—One of the most distressing of the early effects of the war was the plight in which it placed the hosts of American summer tourists in Europe. By the collapse of the machinery of foreign exchange, the interruption of communications between the belligerent countries, and the cancellation of Atlantic steamship sailings, thousands of American tourists were left without funds, without means of communicating with their friends, and without facilities for reaching home. Their relief quickly became a matter of great public concern. In response to messages from the President, Congress appropriated $250,000 for this purpose on Aug. 3, and a further sum of $2,500,000 on the following day. On the appointment of the firm of J. P. Morgan & Co. as representatives of the French Government on Aug. 6, a fund of $6,000,000 was transferred from the Bank of France to Morgan,

Harjes & Co., which was made available for the relief of Americans stranded in Paris, the main objective of the refugees from the beginning of the war panic. The cruiser *Tennessee* sailed the same day from New York for Falmouth, England, bearing $1,500,000 of the government relief fund and $3,000,000 subscribed by a number of New York banks and other concerns issuing travellers' cheques, in charge of Henry S. Breckinridge, Assistant Secretary of War, a number of Army officers and officials of the Treasury and State Departments. The Treasury Department undertook also to locate and make advances to Americans for whom funds were deposited with it on this side. To provide transportation for Americans unable to obtain accommodations on regular steamship lines the War Department dispatched seven Army transports and a vessel of the Panama Railway Co., and American consulates in Europe engaged other ships for this purpose as they became necessary and available. In Europe all the resources of the American legations and consulates, assisted in many cities by voluntary workers, were devoted to the task of search and relief. The *Tennessee*, after providing for the London refugees, visited several of the principal European ports and Mr. Breckinridge and his staff carried funds to every capital in Europe. Special provision was made for the relief and protection of Americans in Turkey by the dispatch of the cruiser *North Carolina* to Turkish waters on Aug. 27. By these measures all the tourists were eventually rescued.

American Representation of Belligerents.—The war has placed an immense burden upon American diplomacy, quite apart from the rescue and care of American tourists. The American diplomatic representatives in all of the belligerent countries have been called upon to assume charge of the interests of nations at war. Ambassador Page in London represents Austria, Germany and Turkey. In Paris, Ambassador Herrick, and later Ambassador Sharp, have had charge of Austrian, German and Turkish interests, and the Servian, British and Japanese archives during the residence of the Government at Bordeaux. Ambassador Mayre at Petrograd represents Austria and Germany. Ambassador Gerard at Berlin represents Great Britain, Japan and Servia, and Ambassador Penfield at Vienna, Great Britain, France and Japan. In Turkey, Ambassador Morgenthau has charge of French, British, Belgian, Servian and Swiss interests, while German and Austrian interests in Servia are represented by Minister Volpicka, at Bucharest. In Belgium, since the outbreak of the war, Minister Whitlock has represented Germany, Austria, Great Britain, Servia, Japan and Denmark. In Japan, Ambassador Guthrie has represented Germany and Austria, and in Egypt, Olney Arnold, American Consul-General, has had charge of German and Swiss interests.

Neutrality. — Austria-Hungary declared war on Servia on July 28. Germany declared war on Russia on Aug. 1, and on the following day German troops invaded France. On Aug. 4 President Wilson issued a formal proclamation of neutrality covering the belligerency of these five powers, which was repeated as Great Britain, Belgium, Montenegro, Japan and Turkey entered the conflict. In the preservation of formal neutrality the United States took an advanced view of its obligation to prevent the shipment of coal and naval stores from American ports for transfer to belligerent vessels on the high seas. The clearance papers of all ships were subjected to rigid scrutiny, and naval patrols were established in all the principal harbors to prevent the departure of uncleared vessels. But the chief problem of the Government was the regulation of wireless communications. On this subject President Wilson issued a special supplementary proclamation on Aug. 5:

> It is now ordered, by virtue of authority vested in me to establish regulations on the subject, that all radio stations within the jurisdiction of the United States of America are hereby prohibited from transmitting or receiving for delivery messages of an unneutral nature, and from in any way rendering to any one of the belligerents any unneutral service during the continuance of hostilities. The enforcement of this order is hereby delegated to the Secretary of the Navy, who is authorized and directed to take such action as to him may appear necessary.

Secretary Daniels promulgated an order on the following day establishing a strict censorship of wireless messages, which prohibited all communications in code or cipher with ship or shore wireless stations of the belligerents, and the handling of messages containing information relating to operations, material or personnel of armed forces of any belligerent nation. The German Government protested that these regulations placed the Teutonic allies at a disadvantage with respect to the powers of the Triple Entente, since, the German cable having been cut by the British, direct communication with the United States could be had only through the high-powered wireless stations under German control at Sayville, Long Island, and Tuckerton, N. J. The Government first proposed to redress the injury to Germany by establishing a similar censorship of cable messages, but finding no warrant in law for this procedure determined instead to relax the censorship of wireless messages. Accordingly, on Sept. 3, Great Britain and Germany acquiescing, the regulations were modified with respect to the use of high-powered stations; the prohibition of the use of code or cipher in messages to or from belligerents was rescinded, the censorship over the neutrality of all messages, however, being still maintained. The Tuckerton station, which was found to be operating without a Federal license as required by the act of Aug. 13, 1912, was taken over by the Government on Sept. 9 and operated exclusively for shore-to-shore communication. The Marconi station at Siasconset, Mass., which disputed the legality of the Government's censorship, was closed on Sept. 25.

But the Government has interpreted its obligations as a neutral nation on principles much more broad than the letter of the Hague Convention and has discouraged the extension of aid to belligerents clearly sanctioned by international law and custom. In the early days of the war the firm of J. P. Morgan & Co. was approached by private interests with a tentative proposal for a loan of $100,000,000 to the French Government, the proceeds of which were to be used exclusively to establish a credit in this country for the purchase of American products for the use of the French people. The negotiations were ended by the announcement by Secretary Bryan on Aug. 15 that, "in the judgment of this Government, loans by American bankers to any foreign nation which is at war is inconsistent with the true spirit of neutrality." In November Charles M. Schwab secured for the Bethlehem Steel Works from one of the Allies a $50,000,000 order for submarines, which was accepted on the best opinion in international law that submarines could be manufactured in the United States and shipped in parts, under the rules governing contraband, without violation of formal neutrality. The President, however, regarded the work in violation of the "spirit of neutrality," and Mr. Schwab, deferring to the opinion of the Administration, on Dec. 7 announced the abrogation of the contract.

Early in December bills were introduced in Congress by Senator Hitchcock (Neb.) in the Senate and Mr. Bartholdt (Mo.) and Mr. Vollmer (O.) in the House proposing to place an absolute embargo on the exportation of arms and munitions of war to belligerent countries, obviously inspired by the fact that England's control of the sea prevents the Teutonic allies from benefiting by the traffic of the United States in contraband commodities. The proposal that the United States should attempt to redress the balance by this indirect aid to Germany and Austria has not been approved by the Administration and the bills have made no progress. The official interpretation of the obligations of neutrality in this particular is given in a statement by Robert Lansing, Counselor for the Department, issued by the Department of State on Oct. 15:

> In the first place, it should be understood that, generally speaking, a citizen of the United States can sell to a belligerent Government or its agent any article of commerce which he pleases. He is not prohibited from doing this by any rule of international law, by any treaty provisions or by any statute of the United States. It makes no difference whether the articles sold are exclusively for war purposes, such as firearms, explosives, etc., or are foodstuffs, clothing, horses, etc., for the use of the army or navy of the belligerent. Furthermore,

a neutral Government is not compelled by international law, by treaty, or by statute to prevent these sales to a belligerent. Such sales, therefore, by American citizens do not in the least affect the neutrality of the United States. It is true that such articles as those mentioned are considered contraband and are, outside the territorial jurisdiction of a neutral nation, subject to seizure by an enemy of the purchasing Government, but it is the enemy's duty to prevent the articles reaching their destination, not the duty of the nation whose citizens have sold them. If the enemy of the purchasing nation happens for the time to be unable to do this, that is, for him, one of the misfortunes of war; the inability, however, imposes upon the neutral Government no obligation to prevent the sale.

President Wilson on Aug. 18 issued an appeal to the American people for the observance of a broad neutrality in their attitude toward the conflict in Europe:

The effect of the war upon the United States will depend upon what American citizens say or do. Every man who really loves America will act and speak in the true spirit of neutrality, which is the spirit of impartiality and fairness and friendliness to all concerned. The spirit of the nation in this critical matter will be determined largely by what individuals and society and those gathered in public meetings do and say, upon what newspapers and magazines contain, upon what our ministers utter in their pulpits and men proclaim as their opinions on the streets.

The people of the United States are drawn from many nations, and chiefly from the nations now at war. It is natural and inevitable that there should be the utmost variety of sympathy and desire among them with regard to the issues and circumstances of the conflict. Some will wish one nation, others another to succeed in the momentous struggle. It will be easy to excite passion and difficult to allay it. Those responsible for exciting it will assume a heavy responsibility; responsibility for no less a thing than that the people of the United States, whose love of their country and whose loyalty to its Government should unite them as Americans all, bound in honor and affection to think first of her and her interests, may be divided in camps of hostile opinions, hot against each other, involved in the war itself in impulse and opinion, if not in action. Such divisions among us would be fatal to our peace of mind and might seriously stand in the way of the proper performance of our duty as the one great nation at peace, the one people holding itself ready to play a part of impartial mediation and speak the counsels of peace and accommodation, not as a partisan, but as a friend.

I venture, therefore, my fellow-countrymen, to speak a solemn word of warning to you against that deepest, most subtle, most essential breach of neutrality which may spring out of partisanship, out of passionately taking sides. The United States must be neutral in fact as well as in name during these days that are to try men's souls. We must be impartial in thought as well as in action, must put a curb upon our sentiments as well as upon every transaction that might be construed as a preference of one party to the struggle before another.

The sympathies of the vast majority of the citizens of the United States have been unmistakably and powerfully directed toward the cause of the Allies. No expression of partisanship, however, has been allowed to escape from any branch of the Government. The German Emperor addressed to President Wilson on Sept. 7 a personal message protesting against the alleged use of dum-dum bullets by the French and English troops. President Poincaré of France, denying the German charge a few days later, reminded the President of protests of the French Government on Aug. 18 and subsequently against this and other offenses against the law of nations by Germany. A commission appointed by the King of the Belgians on Sept. 16 submitted to the President evidence of brutalities and wanton acts of destruction committed by the Germans in Belgium. To all three President Wilson returned the same reply.

Presently, I pray God very soon, this war will be over. The day of accounting will then come, when I take it for granted the nations of Europe will assemble to determine a settlement. Where wrongs have been committed, their consequences and the relative responsbility involved will be assessed.

The nations of the world have fortunately by agreement made a plan for such a reckoning and settlement. What such a plan cannot compass the opinion of mankind, the final arbiter in all such matters, will supply. It would be unwise, it would be premature, for a single government, however fortunately separated from the present struggle, it would even be inconsistent with the neutral position of any nation which, like this, has no part in the contest, to form or express a final judgment.

Mediation.—President Wilson tendered his good offices in the restoration of peace in the following messages addressed on Aug. 5 to Emperor William of Germany, Emperor Franz Joseph of Austria-Hungary, Emperor Nicholas of Russia, King George of

Great Britain, and President Poincaré of France:

As official head of one of the powers signatory to The Hague Convention, I feel it to be my privilege and my duty, under Article III of that Convention, to say to you in a spirit of most earnest friendship that I should welcome an opportunity to act in the interest of European peace, either now or at any other time that might be thought more suitable, as an occasion to serve you and all concerned in a way that would afford me lasting cause for gratitude and happiness.

Officially the tender of good offices drew only formal acknowledgments from the belligerents and was not renewed. After the retreat of the Germans from the Marne, President Wilson was led by private and unofficial suggestions by Count von Bernstorff, the German Ambassador at Washington, of a possible modification of the German attitude again to sound the German Government through Ambassador Gerard. The German Chancellor, Dr. von Bethmann-Hollweg, replied that as the war had been "forced" upon Germany and her enemies had agreed to make peace only by common consent, the United States should obtain proposals of peace from the Allies, which must be such as to guarantee Germany against "future attacks." The President has not found it expedient to make further efforts toward the restoration of peace beyond the issue of a proclamation on Sept. 8 setting Sunday, Oct. 4, as a day of prayer throughout the United States.

THE SIXTY-THIRD CONGRESS, THIRD SESSION

The President's Message.—The third (second regular) session of the Sixty-third Congress opened on Dec. 7, and on the following day President Wilson delivered his annual message in joint session of the two houses. Early in his address he departed from the prepared text of the message to speak a word of reassurance to business:

Our programme of legislation with regard to the regulation of business is now virtually complete. It has been put forth, as we intended, as a whole and leaves no conjecture as to what is to follow. The road at last lies clear and firm before business. It is a road which it can travel without fear or embarrassment. It is the road to ungrudged, unclouded success. In it every honest man, every man who believes that the public interest is a part of his own interest, may walk with perfect confidence.

Adverting then to the European War, the President urged Congress to an extraordinary effort to make the resources of the United States available to supply the new demands.

There is reason to fear that the time is near, if it be not already at hand, when several of the countries of Europe will find it difficult to do for their people what they have hitherto been always easily able to do—many essential and fundamental things. At any rate, they will need our help and our manifold services as they have never needed them before; and we should be ready, more fit and ready than we have ever been. It is of equal consequence that the nations whom Europe has usually supplied with innumerable articles of manufacture and commerce of which they are in constant need and without which their economic development halts and stands still can now get only a small part of what they formerly imported, and eagerly look to us to supply their all but empty markets. This is particularly true of our own neighbors, the States, great and small, of Central and South America. . . . Here are markets which we must supply, and we must find the means of action. . . .

We have the resources, but are we fully ready to use them? And if we can make ready what we have, have we the means at hand to distribute it? We are not fully ready; neither have we the means of distribution. . . . To speak plainly, we have grossly erred in the way in which we have stunted and hindered the development of our merchant marine. And now, when we need ships, we have not got them. We have year after year debated, without end or conclusion, the best policy to pursue with regard to the use of the ores and forests and water powers of our national domain in the rich states of the West, when we should have acted; and they are still locked up. The key is still turned upon them, the door shut fast at which thousands of vigorous men full of initiative knock clamorously for admittance. The water power of our navigable streams outside the national domain also, even in the eastern states, where we have worked and planned for generations, is still not used as it might be, because we will and we won't; because the laws we have made do not intelligently balance encouragement against restraint. We withhold by regulation.

To remedy these mistakes and omissions the President recommended the enactment of the bills of his conser-

vation programme opening the resources of the national domain to development and encouraging the use of water powers on navigable streams, both of which had already passed the House (see X, *Public Lands*). To provide facilities for the distribution of American products he urged the passage of the pending bill for the establishment of a government steamship line (see *supra*). Apart from these measures the President recommended to Congress only the ratification of the international convention on safety at sea (see XX, *The Merchant Marine*), provision for the survey and charting of the Alaskan coast, and the enactment of the bill granting a larger measure of self-government to the Philippine Islands which had already passed the House (see *supra*). He announced the postponement of rural-credits legislation until the next Congress (see XVII, *Rural Credits*).

Turning from his proposals for constructive legislation, the President appealed to Congress for economy in government expenditures. The people of the United States, he said, are not jealous of the amount the Government costs if the expenditures are made for legitimate and approved objects and with good business sense and management. There should be, he agreed, "a systematic reorganization and re-assembling of its parts so as to secure greater efficiency and effect considerable savings in expense." But,

> It is not expenditure but extravagance that we should fear being criticized for; not paying for the legitimate enterprises and undertakings of a great Government whose people command what it should do, but adding what will benefit only a few or pouring money out for what need not have been undertaken at all or might have been postponed or better and more economically conceived and carried out. . . . These are large and general standards, but they are not very difficult of application to particular cases.

National Defense.—The last half of the President's message dealt with the subject of national defense. The war in Europe naturally inspired a discussion of the military and naval status of the United States, out of which developed an agitation for a thorough investigation of the condition and adequacy of national armament. A resolution for an inquiry of this nature by a special commission was introduced in the House in the closing days of the second session of the Sixty-third Congress by Mr. Gardner (Mass.), the protagonist of the movement. The propaganda was continued actively during the adjournment of Congress, promoted by reports of deficiencies in personnel and materiel in the Army and Navy, notably that of Major-General Wotherspoon, the retiring Chief of Staff of the Army, who asserted that the United States is powerless to defend its outlying possessions and the Panama Canal against attack, and advocated the increase of the military force immediately effective from 93,000, the present figure, to 500,000 enlisted men. Mr. Gardner's proposed investigation was endorsed and a campaign of education organized by the institution of the National Security League at New York on Dec. 1, the objects of which were defined as follows:

> First.—To secure through effective investigation authoritative and comprehensive information in regard to the condition of our national defense, naval and military.
>
> Second.—To find out how considerable an addition would be required to the present annual appropriations to attain the larger measure of efficiency, that is to say, insurance, that may prove to be essential.
>
> Third.—To bring about such organization of citizens throughout the country as may make practicable an intelligent expression of public opinion and may insure for the nation an adequate system of public defense.

President Wilson in conference with Mr. Gardner on Dec. 7, while favoring the fullest investigation by committees of Congress, opposed the proposed inquiry by commission as an unwise way of handling a question which might create very unfavorable international impressions. In his message on the following day he dealt with the subject of national defense thus:

> From the first we have had a clear and settled policy with regard to military establishments. We never have had, and while we retain our present principles and ideals we never shall have, a large standing army. If asked, Are you ready to defend yourselves? we reply, Most assuredly, to the utmost; and yet we shall not turn America into

a military camp. We will not ask our young men to spend the best years of their lives making soldiers of themselves. There is another sort of energy in us. It will know how to declare itself and make itself effective should occasion arise. And especially when half the world is on fire we shall be careful to make our moral insurance against the spread of the conflagration very definite and certain and adequate indeed.

Let us remind ourselves, therefore, of the only thing we can do or will do. We must depend in every time of national peril, in the future as in the past, not upon a standing army, nor yet upon a reserve army, but upon a citizenry trained and accustomed to arms. It will be right enough, right American policy, based upon our accustomed principles and practices, to provide a system by which every citizen who will volunteer for the training may be made familiar with the use of modern arms, the rudiments of drill and maneuver and the maintenance and sanitation of camps. We should encourage such training and make it a means of discipline which our young men will learn to value. . . . It is right, too, that the National Guard of the states should be developed and strengthened by every means which is not inconsistent with our obligations to our own people or with the established policy of our Government. . . . More than this carries with it a reversal of the whole history and character of our polity. . . . A powerful navy we have always regarded as our proper and natural means of defense; and it has always been of defense that we have thought, never of aggression or of conquest. But who shall tell us now what sort of navy to build? We shall take leave to be strong upon the seas, in the future as in the past; and there will be no thought of offense or of provocation in that. . . . We shall not alter our attitude toward [the subject] because some among us are nervous and excited. We shall easily and sensibly agree upon a policy of defense. The question has not changed its aspects because the times are not normal. . . . The country has been misinformed. We have not been negligent of national defense. We are not unmindful of the great responsibility resting upon us. We shall learn and profit by the lesson of every experience and every new circumstance; and what is needed will be adequately done.

National Prohibition.—The House Committee on Rules reported unanimously on Dec. 12 a resolution to bring to a vote on Dec. 22 the amendment to the Federal Constitution providing for national prohibition introduced on Dec. 10, 1913, by Senator Sheppard (Tex.) in the Senate and Mr. Hobson (Ala.) in the House (*A. Y. B.*, 1913, p. 402). The resolution of submission as amended and finally voted on was as follows:

Whereas, exact scientific research has demonstrated that alcohol is a narcotic poison, destructive and degenerating to the human organism, and that its distribution as a beverage or contained in foods lays a staggering economic burden upon the shoulders of the people, lowers to an appalling degree the average standard of character of our citizenship, thereby undermining the public morals and the foundation of free institutions, produces widespread crime, pauperism, and insanity, inflicts diseases and untimely death upon hundreds of thousands of citizens, and blights with degeneracy their children unborn, threatening the future integrity and the very life of the nation; therefore be it

Resolved, by the Senate and House of Representatives of the United States of America in Congress assembled (two-thirds of each house concurring therein), That the following amendment of the Constitution be and hereby is proposed to the states, to become valid as a part of the Constitution when ratified by the legislatures of the several states as provided by the Constitution:

Section 1.—The sale, manufacture for sale, transportation for sale, importation for sale, and exportation for sale of intoxicating liquors for beverage purposes in the United States and all territory subject to the jurisdiction thereof, and exportation, are forever prohibited.

Section 2.—The Congress or the states shall have power independently or concurrently to enforce this article by all needful legislation.

The amendment was opposed as an infringement of state rights by the leaders of both parties in the House. Nevertheless it secured a small majority of those voting on the resolution, although the vote fell considerably short of the necessary two-thirds. The amendment was sustained by 197 members, 114 Democrats, 68 Republicans, 11 Progressives, and four Progressive Republicans; while 189 voted against it, 141 Democrats, 46 Republicans, one Progressive, and one Independent.

Estimates for 1915.—The estimates for the fiscal year 1916, prepared by the different Departments and submitted to Congress by Secretary McAdoo on Dec. 7, asked for appropriations amounting to $1,090,775,134, a sum $3,392,962 less than the appropriations for 1915 and $17,906,643 less than the estimates for the current year. The estimates called for no salary increases of any importance and eliminated all projects for new public buildings; they represented a serious effort to keep the Government's expenditures within its dimin-

ished income. The postal revenue is expected, as usual, to meet the cost of the postal service, estimated at $297,355,164. The Army and Navy estimates alone showed important increases; the Army estimate was increased to $105,866,850, from a current appropriation of $101,977,802, and the navy estimate by a smaller amount, from $141,393,217 to $142,619,033. The estimate for rivers and harbors was $53,000,000, an increase of $27,000,000 over the estimate for 1915. In the Department of Commerce the chief increase was $3,000,000 for a new census of agriculture.

Secretary McAdoo estimated the receipts for the fiscal year 1915 at $728,000,000, including $220,000,000 from customs, $54,000,000 from the emergency war tax, and $80,000,000 from the income tax, divided equally between individuals and corporations. Exclusive of $28,000,000 for the Panama Canal, to be supplied from the general fund of the Treasury, he estimated expenditures at $710,000,000, leaving a deficit of $10,000,000.

POLITICS AND PARTIES

JAMES ALBERT WOODBURN

The Position of the Parties.—The early months of 1914 in politics found the various parties playing for position and vigilantly watching the state of public opinion, while planning for the opening of the biennial contest for the control of the Congress and a number of state administrations. On the Democratic side, in the national field, a goodly number of public measures were already accredited to the Wilson Administration, which were calculated to secure for the party popular strength and endorsement. The President's popularity, instead of waning, as his opponents had hoped, was undoubtedly on the increase. Although his Mexican policy of "watchful waiting" had been the subject of severe criticism and animadversion among his opponents and had still to be vindicated, yet in that, as in his domestic policies, the President had the undoubted confidence of the country. Obviously his party was to find in President Wilson an advantageous asset in the political contests of the year. As a party leader he had shown almost unrivaled control over Congress and he had held the party majority together for effective "team work." His party had had a record for faction and division and the political and party unity in Cabinet and Congress under the President's leadership was an event unexpected by the political opponents of the Administration. It was seen that the Democratic party would enter upon the Congressional campaign with practically a united front, barring a local defection in Louisiana on account of the free-sugar provision in the Underwood tariff legislation.

On the Republican side it was clearly recognized at the outset of the year that the most important immediate mission of the party was to maintain its ground and recover its strength, and to this end the matter of most vital concern was to retard and defeat the growth of the Progressive party (see Mr. Taft's article on "The Future of the Republican Party" in *Saturday Evening Post*, Feb. 14, 1914). To this end the Republican party managers, as a rule, spoke with respect of the rank and file of the Progressives, and pursued a conciliatory policy calculated to induce Progressive voters to return to the Republican fold.

The Progressives in every northern state in which they had cast a respectable vote in 1912 sought to strengthen their organization and made preparations to place state and Congressional tickets in the field. From the expressions of Progressive conferences and party leaders the spirit of antagonism toward the Republican party and its management seemed as positive and as uncompromising as it had been two years before. It appeared at the beginning of the year that the division within the Republican party would not be healed and consequently that the Democrats would have an easy victory in the fall elections.

In an "off year" the party contests are largely local, though national policies and issues are likely to have an important bearing. Therefore, the

best summary of the political history of the year may be made by noticing the development of the more significant party contests in the important states.

The Political Situation in New York.—Within Democratic circles in New York, the opening of the year found considerable dissatisfaction with the Democratic administration of the state government. This was due largely to the influence of Tammany, through whose power Governor Sulzer had been impeached and deposed, not for doing any wrong, his friends asserted, but for attempting to do what was right. Governor Glynn's appointments brought disappointment to independent Democrats who hoped that he would cut loose from Tammany control. The anti-Tammany element of the party succeeded in electing William Church Osborne as chairman of the Democratic State Committee in the hope of elevating the leadership of the Democratic party in the state.

Charles S. Whitman, district attorney of New York County, who had made a good record in his office and who had been prominently considered for the mayoralty contest in 1913, became a candidate for the Republican nomination for governor. He first sought to secure the endorsement of Mr. Roosevelt and the Progressives, but the Progressive leaders insisted that Mr. Whitman should first come out openly and denounce the boss control and machine politics in the Republican party as represented by Mr. Barnes, the chairman of the state party committee. Mr. Whitman declined to do this, which led Mr. Roosevelt to oppose him on the ground that he was seeking Progressive support while unwilling to break with or jeopardize the support of Barnes.

Mr. Roosevelt sought at first to unite the Progressives, the independent Republicans and the independent anti-Tammany Democrats on common nominations and for the support of a joint ticket. He held that the situation in New York State was like that in New York City the preceding fall (1913), when a reform movement in city government had brought about a non-partisan fusion of all the elements willing to oppose Tammany and corrupt machine politics in both the old parties. In order to bring about a similar fusion in the state against a Tammanyized state administration, Mr. Roosevelt suggested that ex-State Senator Harvey D. Hinman be nominated for governor by both the Republican and Progressive primaries, which would make Mr. Hinman the joint candidate of both parties. Mr. Hinman was a Republican in good standing, but he had been of that element in his party that had stood by Governor Hughes in his struggle for a good primary-election law. Mr. Hinman announced his candidacy for governor and openly attacked the party bosses, asserting that Governor Hughes' cause had "been defeated as a result of the combination made between Mr. Barnes and Mr. Murphy." Mr. Barnes, as a matter of course, became a pronounced opponent of Mr. Hinman for the Republican nomination to the governorship and began to throw his support in favor of Mr. Whitman.

The attempt at fusion in New York fell through. The Progressives were unwilling to name any one for governor who would not definitely break with the Republican organization. This no candidate would do who cared to be nominated and elected. At the Republican State Convention late in August, held for the purpose of formulating a platform, Mr. Hinman gave out a signed statement asserting that, while he adhered to the anti-boss issue, yet if he were not nominated at the Republican primaries he "would not by word or act leave his party either before or after the primaries nor ask support for any nominee of any other party." This meant that Mr. Hinman would not oppose the Republican nominee even if he were the recognized subordinate of Mr. Barnes. The Progressives, therefore, proceeded to nominate a ticket of their own, including ex-State Senator Frederick M. Davenport for governor, and Bainbridge Colby for United States Senator.

In the New York Democratic primaries it was hoped by the anti-Tammany Democrats and the friends of the Wilson Administration that Franklin D. Roosevelt might be nominated for United States Senator and John A. Hennessy for governor, but

in the voting Governor Glynn was renominated and it was shown that Mr. Murphy was still the dominant factor in the Democratic party of New York State. Mr. Whitman with the consent and support of Mr. Barnes was nominated for governor by the Republicans. Mr. Whitman represented also a large element of independent Republicans who were not committed definitely to the unquestioned leadership of Mr. Roosevelt.

Politics in Pennsylvania.—In Pennsylvania Senator Penrose was renominated at the Republican primaries (May 29th), defeating Mr. Dimmick, ex-mayor of Scranton, a Republican of the progressive type. A. Mitchell Palmer, a "Bryan-Wilson Democrat" and a friend of the President, was nominated for Senator by the Democrats. Vance McCormick, also of the "reorganizing faction" of the Democrats, the Bryan-Wilson group, was named for governor. Gifford Pinchot, former Chief Forester of the United States, was nominated for United States Senator by the Progressives. It was held by the opponents of Senator Penrose's reëlection that his nomination had made bossism and machine rule the issue in that state. The *Philadelphia Ledger* and the *New York Tribune*, two of the foremost organs of the Republican party in the country, repudiated Penrose's nomination. These influential journals asserted that the issue was not a party one and that all citizens regardless of party should unite to defeat Penrose. "The recrudescence of Penrose," said the *Tribune*, "is a challenge to the progressive element in the Republican party everywhere. There must be no compromise with the forces of reaction. His success would be a costly victory for the Republican party." The *Tribune* urged Republican voters in Pennsylvania to support Pinchot.

Roosevelt in the Campaign.—Mr. Roosevelt made his first political speech of the year in the Pennsylvania campaign, at a Progressive rally in Pittsburgh on July 8. He attacked the administration of President Wilson both for its domestic and foreign policies. He criticized the Democratic party for its disposition to refer public questions to the states as the "party-afraid-of-power." In its foreign policy of watchful waiting it had shown timidity; in its home policy it had manifested undue hostility to big business; and by its tariff policy it had disturbed industry and prosperity. Mr. Roosevelt urged the encouragement of corporations so long as they were duly regulated by law and were subject to the sovereign power of the United States. Monopoly is not to be destroyed by attacking all forms of concentration; the real economic basis of monopoly should be understood and in some instances destroyed, while there may be benevolent monopolies that should be encouraged, and this policy toward monopolies should be conducted by the political arm of the Government and not by reliance on the courts. We may encourage the concentration and prosperity of honest and helpful business while carrying on effective warfare against corrupt and unfair business. Mr. Roosevelt also stood for the humanitarian rights of the wage workers, the abolition of the 12-hour day, and the substitution of three shifts of eight hours each. He expressed sympathy for and confidence in the rank and file of the Republican party, but he denounced with vigor the bossism of such Republican leaders as Penrose of Pennsylvania and Barnes of New York. During the campaign Mr. Roosevelt spoke repeatedly in other states in support of Progressive candidates, and he affirmed repeatedly that he would never go back to the Republican party.

Mr. Pinchot's Candidacy in Pennsylvania.—The candidacy of Mr. Pinchot in Pennsylvania may be taken as representative of the Progressive party for the year, though that party was equally well represented by the candidacies for the Senate of ex-Senator Beveridge in Indiana, ex-Secretary of the Interior Garfield in Ohio, Raymond Robins in Illinois, and Victor Murdock, the Progressive leader in the House, in Kansas. Mr. Pinchot's platform fairly represented them all.

In announcing his candidacy Mr. Pinchot declared for the destruction of private monopoly in natural resources or the products of industry; exclusive privileges of monopolies must be destroyed to end their power

to raise the cost of living; the right of workmen to organize in unions and the compulsory recognition of these unions by employers as a means of meeting on equal terms; constitutional revision in Pennsylvania for the readjustment of the system of taxation; a protective tariff which shall equalize the conditions of competition between the United States and foreign countries, to be based upon the findings of a non-partisan tariff commission, the tariff thus to be taken out of politics; a sharply graduated inheritance tax, to reduce the swollen fortunes that drain the public; the prevention of fraud in clothing—honest clothes are more important than undoctored whisky. Coupled with these demands, Mr. Pinchot stood for the reform laws usually contained in a Progressive platform, the initiative, referendum, recall, short ballot and direct primaries.

The Illinois Situation.—The campaign for the Senatorship in Illinois was of special interest. Senator Lawrence Y. Sherman, who was nominated in the Republican primaries, in his candidacy for reëlection stood for the restoration of high protection and made his campaign chiefly upon that issue, citing the prevailing unemployment and hard times which, as he claimed, were caused by the reversal of the protective policy. Roger L. Sullivan, a reactionary Democrat of the machine type, announced his candidacy for the Democratic nomination for the United States Senate on Jan. 1. Sullivan had always been an anti-Bryan Democrat, though he had never sacrificed his "regularity," by openly opposing Bryan's election to the Presidency. Mr. Bryan in the *Commoner* (February) made a vigorous attack on Sullivan, declaring his candidacy as a Democrat to be impossible, holding that he was to the Democratic party what Lorimer was to the Republican. Sullivan wired the Secretary of State to learn whether the editorial represented Mr. Bryan's views, and Mr. Bryan answered that he was personally responsible for it. In spite of Bryan's opposition Sullivan continued his candidacy and received the nomination in the Illinois Democratic primaries.

Senator Robert L. Owen of Oklahoma, a leader in the Democratic party, spoke in Illinois against the election of Sullivan. Owen represented the National Popular Government League, and he spoke in Illinois for Mr. Robins, as Senator Norris, a Republican Senator from Nebraska, spoke in Pennsylvania in favor of Mr. Pinchot and against Mr. Penrose. Owen opposed Sullivan as "a bipartisan machine boss," as "a conspicuous enemy of the principles of fundamental democracy," as "a political adventurer and a convenient instrument of organized rascality, trying to use the governing power of the people for selfish purposes." Owen asserted that President Wilson did not need Sullivan in the Senate. On his own behalf Sullivan pledged the voters that if he were elected he would sustain the President with all his power and ability and with a wholehearted devotion. Sullivan's friends sought to obtain the support of President Wilson, but this was not openly and candidly given, and the voters were left in doubt to the end of the campaign whether President Wilson really desired Sullivan's election. Secretary Bryan refused to speak in Illinois in support of Sullivan, but Postmaster-General Burleson did so speak, and he asserted that his campaigning in Illinois in support of Sullivan was by the knowledge and consent of the President.

Senator La Follette and Wisconsin.—In Wisconsin Senator La Follette's leadership suffered a double reverse in the party primaries (Sept. 1). In the nominating contest for the governorship in the Republican party, success was won by Emanuel L. Phillip, the candidate of the old-line conservative Republicans, who had always opposed La Follette and his Wisconsin policies and whom La Follette especially denounced and opposed. In the contest for the United States Senatorship, Governor McGovern was nominated, a Roosevelt Progressive whom La Follette had bitterly opposed because of McGovern's support of Roosevelt in the Republican Convention of 1912. The Democrats nominated John C. Carel, their unsuccessful candidate in 1912, who was a pronounced conservative, if not a reactionary, Democrat. The Progres-

sives were satisfied to support McGovern for Senator. Progressives, Republicans and Democrats who were dissatisfied with the old-party nominations, and some independent citizens of progressive inclinations, sought to induce Senator La Follette to accept an independent nomination for the governorship but he declined.

Democrat Revolt in Louisiana.—The Democratic Congressional Committee of the Third District in Louisiana went over in a body to the Progressives. This was a cane-sugar region whose local interests had been hard hit by the Democratic tariff legislation. These committee members were prominent, active, working Democrats, and they were prompted chiefly from dissatisfaction with the free-sugar policy of the Administration. This was heralded by the Progressives as a healthy sign of independence in political opinion and as a break from the traditions and struggles of 50 years that had kept a solid South on racial and sectional issues. It was used to substantiate the Progressive claim that that party was needed to end the "solid South" and sectionalism in America and to build up a party in opposition to the Democrats on solid national lines.

President Wilson's Appeal for Democratic Support.—On Oct. 18, on the eve of the adjournment of Congress and near the close of the campaign, President Wilson in a letter to Mr. Underwood set forth the reasons, as the President saw them, why the country in the approaching elections should sustain the Democratic party in control of Congress. The President had declined to go upon the stump for his party, but he offered this letter as a substitute for the speech he would have delivered. He urged the rëelection of every member of Congress "who had sustained and advanced the plans of the party." Congress was now completing its legislative programme, its "constructive legislation" which the "big business" interests of the country had been dreading, if not antagonizing. The President claimed that the people of the country had been served by this Congress "as they had never been served before." Their programme had had a single purpose in view, namely, to "destroy private monopoly and to set business free." This had been the object of the foreign policy of the Government as well as of the domestic policy. Congress had reformed the tariff on a competitive basis, which had "cut away the jungle" in which secret agencies had so long lurked; it had passed a Currency bill reorganizing the banking business of the country, which would destroy the "monopoly of money," create a "democracy of credit," establish an "elastic currency and permit the mobilization of the resources of the nation," while enlarging agricultural credit and giving credit to every man who could show "energy and assets and a going business," whether big or little; it had passed an income tax replacing revenue lost from other sources, which had shifted tax burdens from many consumers to shoulders better able to bear them. In addition to all these benefits Congress had struck boldly for the abolition of the lobby by "a pitiless turning on of the light," and had passed the Clayton bill for the regulation of trusts. Incidental to these policies justice had been sought for the laborer; "his labor is no longer to be treated as if it were merely an inanimate object of commerce disconnected from the fortunes and happiness of a living human being, to be dealt with as an object of sale and barter." President Wilson looked to the Clayton bill to check the growth of monopoly, which was built up by unfair methods of competition, which the new Federal Trade Commission has power to forbid and prevent. He defined the distinction between the parties thus:

> We would have no dealing with monopoly, but would reject it altogether, while our opponents were ready to adopt it into the realm of law and seek merely to regulate it and moderate it in its operation. It is our purpose to destroy monopoly and maintain competition as the only effectual instrument of business liberty.

The President explained that the new war tax was what its name implies, because war and only war had caused it, and he deemed it fortunate that the reduction of duties had come first. Altogether the President believed there had "never been a finer exhibition of team work or of unhesitating

devotion to the fulfillment of party pledges," a work that had been done more in a spirit of statesmanship than of partisan bias.

The President went on to outline a great work of "constructive development" still to be accomplished, mostly of a non-partisan character, such as conservation of our natural resources, the development of water power, the building up of our merchant marine, and a measure regulating railroad securities. On such measures there will be found to be differences of opinion but not a division on party lines. There may be added to all these measures the repeal of the act exempting American coastwise vessels from tolls at Panama, which President Nicholas Murray Butler declared had made America "the first power in the world." The President concluded his letter with an appeal for the election of a Congress "in close sympathy with the Administration in order to bring to its full realization a whole scheme of peace and honor and disinterested service to the world."

Arguments of the Opposition.—The opposition parties rejected the view that the Wilson Democratic policies had been either sound or successful. The Republicans laid special stress upon the tariff as a campaign issue. They denounced the Democratic tariff revision and to the lowered tariff duties they attributed all the ills of the country, the industrial depression, the closed factories, the falling-off of trade, the restriction of credit, the hard times and the jobless workmen. They claimed that business had been vexed and annoyed and had been put into a state of unsettlement and uncertainty, that the farmer had been hard hit by tariff reduction, that farm and dairy products were coming into American markets from Argentina, Australia, and other lands, and that, while the price received by the farmer for his products was thus reduced, the high cost of living to the laborer and the ultimate consumer had been in no way affected. The Republicans therefore asserted that there could be no prosperity for business man, working man or farmer without a restoration of a higher tariff.

The Progressives, while not attacking the Democratic tariff revision so vigorously or exclusively as the Republicans, still declared for the general principle of protection. They urged, especially, that the tariff should cease to be made the football of politics and that tariff revision from time to time should be attended to by a scientific and expert tariff commission. They maintained that the Republican party was still boss-ridden and machine-controlled and they emphasized the need not so much of higher-tariff restoration but of further progressive legislation for social amelioration. They held that the work for a progressive democracy had but just begun, and that the measures on which Mr. Wilson and his Democratic majority were pluming themselves had made but a slight impression upon the serious industrial and social problems now confronting the people of the United States. Unemployment and unrest among wage-workers, the need for lower cost of living, the inefficient and wasteful business organization of the country, the wasteful extravagance in Federal finances, enlightened conservation, not only of material resources but of the material interests of great masses of laborers, the control of communication and transportation among the states, all of these problems tended to show, the Progressives claimed, that there were graver responsibilities before the Democratic Congress than that body had yet been bold enough to wrestle with.

Influence of the European War on American Politics.—The European War coming on in August absorbed popular attention. The newspapers gave but little space to domestic politics and interest in the Congressional campaign lagged in a desultory way. A universal sentiment in America deplored and reprobated the war. The President immediately issued a proclamation of neutrality, and in facing the world crisis the country, regardless of party, was eager to support President Wilson in his desire to serve the cause of peace and to save America so far as possible from the destruction and losses of war. This seemed to make for the advantage of the Administration, as the people's minds were largely diverted from the

opposition attacks on Democratic policies. On the other hand, the sudden depression and curtailment caused by the war in domestic manufactures and trade added greatly to the existing industrial distress and unemployment (see XIII, *Economic Conditions*), and, with the levy of war taxes (see XIV, *Public Finance*), worked in a very positive way to the disadvantage of the party in power.

The Elections.—There were some minor elections indicating the political drift before the general elections in November. In the Seventh Congressional District of New Jersey, a Republican (Dow H. Drukker) was elected to Congress (April 7) to fill an unexpired term. The Socialists polled over 5,000 votes in the election, but the Progressives' vote of 1912 (4,700) almost disappeared (611). The result was attributed to unemployment and labor troubles in Paterson and Passaic County; but by the Republicans it was interpreted as dissatisfaction in industrial centers with the Democratic tariff policy. In the Twelfth Massachusetts District, a Democrat won at a special election for a member of Congress but by a reduced majority, which was also taken to indicate a reaction against the Administration.

More important was the election in Maine on Sept. 14. This early election is usually looked upon as a political barometer. The people of Maine elected at this time a governor, legislature, and four members of Congress. The Democratic candidate for governor (Oakley Curtis) carried the election by a plurality of about 3,300, though he was in a minority as against the vote of the combined opposition. The Progressive vote of about 18,000 was only about one-third of the vote cast for Mr. Roosevelt in 1912. The four Representatives in Congress (three Republicans and one Democrat) were reëlected. The Democrats came into the control of the state legislature. The result in Maine was generally taken to indicate that the Wilson Administration was still strong in popular favor and would be sustained.

The next six weeks, however, brought a change more favorable to the Republicans, as the results of the November election showed. In the November election the Democrats all but lost the control of the House of Representatives. Their large majority of 147 in that body was reduced to 29. They, however, gained two seats in the Senate, thus increasing their majority in that body. The Progressives lost eight members of the House, falling from 15 to 7, while their popular vote in the country did not reach one-half (about 1,700,000) what it was in 1912. The decisive decline of the Progressive vote was one of the most significant features of the election, which indicated that the Republican party would be looked to as the leading party of the opposition and that the country preferred to maintain the traditional two-party system in politics. The Progressive leaders, however, pointing to the facts that in pivotal states their party still holds a large vote, amounting to much more than the balance of power, and that the reverses to their party came from causes that were temporary and local, propose to maintain their organization and await the circumstances of 1916, with claims of confidence in the final triumph of Progressive principles.

In the important state of New York Mr. Whitman, Republican, was elected governor by a plurality of over 136,000, whereas in 1912, Governor Sulzer, Democrat, had been elected by a plurality of over 200,000. The Progressives in New York in 1912 had received 393,000 votes, lacking only 51,000 of reaching the Republican vote, while in 1914, the Progressive vote fell to about 47,000, and the party came fourth in the race, the deposed Governor Sulzer running as the candidate of the American and Prohibition parties, receiving 119,000 votes. The chief solace for the Progressives came from California, where Governor Hiram Johnson, their candidate for Vice-President in 1912, was reëlected, though their candidate for the United States Senate, Mr. Heney, lost to his Democratic opponent, Mr. Phelan, a defeat which Mr. Heney subsequently charged to a deal between the forces of Mr. Phelan and Governor Johnson. In the important states of the middle west, Ohio and Illinois, the Democrats suffered a decided reverse, Governor Cox being de-

feated for reëlection in Ohio and the Republicans electing their candidates for the United States Senate in both states. In Illinois, the religious undercurrent and the influence of the "wet" and "dry" issue were apparent. The "wets" generally supported Sullivan, the Catholic Democrat, for the Senate, while Senator Sherman was backed by the "drys" and the anti-Catholic forces, while he obtained some advantage as against Robins by advocating, in large measure, the principles of the Progressive party platform. In other states, also, there were undercurrents and local issues of a nonpartisan nature which proved decisive in determining results.

Viewing the field locally from the viewpoint of the states, the Democrats do not appear to have fared so badly as would be indicated by the reversal in the membership of the House. They elected governors in Minnesota, Nebraska, Massachusetts, and Michigan, traditional Republican states, while they elected United States Senators in California, South Dakota, and Wisconsin, states which also in times past have usually been Republican, and they reëlected their Senators in Indiana and Oregon. The Democrats claimed that the results, on the whole, might fairly be claimed as a Democratic victory and that the returns were in no sense to be considered as a rebuke to the Wilson Administration. The reverses were no more than were to be expected in an "off year," as it is a well known fact in our political history that a reaction against the party in power is to be expected midway in a Presidential term, especially when the control of both houses of Congress had gone with the Presidency, and more especially when important legislation affecting manufactures and imports, like the new tariff act, had been passed by the successful party. For the first time since the Civil War a party had revised the tariff downward and still held the House. Moreover, the overwhelming Democratic victory of 1912 was over a divided opposition, while the near defeat of 1914 was to be explained by the return of so many Progressives to the Republican party. On the other hand, the Republicans asserted that the elections were to be interpreted as a positive rebuke to the Wilson Administration and the Democratic policies and that the vote presaged the disappearance of the Progressives, a reunion of the Republican party, and a certain Republican triumph in 1916.

Judged from the standpoint of national parties, the result was a decisive Republican gain, and indicates, if not the suppression of the Progressive revolt, at least a most encouraging revival of the Republican party under the conservative leadership and control of the anti-Roosevelt forces that were behind Mr. Taft in 1912. This is interpreted by Progressives as a victory of reaction, which is to be accounted for not by the deliberate choice of the voters but by the unusual industrial distress of the times and, in part, by a meaningless and purposeless fluctuation of popular opinion.

Notable among the conservative Republicans ("standpatters") who were returned to the House are ex-Speaker Joseph G. Cannon, William McKinley and William A. Rodenberg of Illinois; Nicholas Longworth of Ohio; E. J. Hill of Connecticut, and W. A. Calderwood of Kansas. In keeping with these results are to be noted the facts that James T. McDermott of Illinois, a reactionary Democrat, who was forced to resign from the House following an investigation of the famous Mulhall charges (see *supra*), won a reëlection as a "vindication," and Mr. Sullivan, a Democrat of the same type, came within a close vote of being elected to the Senate on the Democratic side. Among the "Old Guard" Republican Senators who were returned were Senator Penrose of Pennsylvania, who was reëlected by a vote almost equal to the combined opposition; Senator Brandegee of Connecticut, who defeated Governor Simeon E. Baldwin; Senator Gallinger of New Hampshire; Senator Dillingham of Vermont, who defeated Charles A. Prouty, a former member of the Interstate Commerce Commission, who was supported by a combination of Progressives, Democrats and Prohibitionists; Charles A. Curtis, an ex-Senator of the old Aldrich school; and Senator Reed Smoot, who was returned from Utah by one of the clos-

est votes in the history of the state, against the united opposition of the Democrats and Progressives. The Republican gains were more marked and decisive in the East, less so in the Middle West, while they showed no significant gains at all in the Far West. In Kansas, while Mr. Curtis, who was without sympathy for Progressive ideas, was elected to the Senate by about 6,000 plurality, Mr. Capper, on the same Republican ticket, who had been a Progressive in 1912, received about 40,000 plurality.

These mixed and varied results in different sections taken with the fact that woman suffrage won in two new states (see II, *Popular Government*), and prohibition in four (see XV, *The Liquor Problem*), indicated that the political reaction against radicalism and social reforms had stopped short of being decisive. The Democratic Administration is still committed to a progressive economic programme, and President Wilson in his annual message in December (see *supra*) urged upon Congress and his party the revival of our merchant marine, a vigorous policy of conservation in the use of water power, and a reorganization of the machinery of the national Government for the sake of greater economy and efficiency.

The Progressive Conference.—A Progressive conference was held in Chicago on Dec. 2. The leaders assembled numbered nearly 100 and represented 34 states. A public statement was issued through the chairman of the executive committee, George W. Perkins, declaring that the party organization and campaign of education should be continued, and it was decided that the Progressive National Committee should meet not later than Jan. 15, 1916, to fix the time and place for holding the national convention in that year and to prepare for the campaign. The address said:

> The industrial depression and the consequent reaction against the Democratic tariff were undoubtedly the issue which primarily determined the reactionary results of the recent election. Both the Republican and the Democratic parties have passed tariffs by the old method of log-rolling and the people have now successively repudiated them both.
>
> So long as the tariff is made in politics and log-rolling there can be no stability of industrial conditions and business can have no peace. The way to provide stable industrial conditions and business peace is to accept the principle of protection as a fixed national policy and to take the tariff out of politics.
>
> Progressive principles are permanent and it is now more than ever evident that the Progressive party to-day is the necessary organ for their realization.

A tabulation of the vote of the party in the November election was presented, showing a total of 1,746,118, divided as follows: New England states, 70,171; middle Atlantic states, 311,290; south Atlantic states, 73,736; middle western states, 623,722; western states, 667,199. Only three southern states, Alabama, Georgia and Louisiana, were included in the total. The Progressive vote for President in 1912 was 4,126,020.

Representation in Republican National Conventions.—The plan proposed in 1913 for the readjustment of representation in Republican national conventions (*A. Y. B.*, 1913, p. 61-63) was ratified by the required number of state conventions, and on Oct. 25 Charles D. Hilles, chairman of the Republican National Committee, announced that the call for the convention of 1916 would be on the new basis. Every state convention of the party held during 1914 gave its assent to the plan for reapportionment except Texas, the states adopting it being entitled to cast 290 electoral votes out of a total of 531. These states were Arkansas, California, Colorado, Connecticut, Idaho, Illinois, Indiana, Maine, Massachusetts, Michigan, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, Tennessee, Vermont, Washington, West Virginia. The plan reduces the number of delegates by 89, the loss falling mostly on the South, while there is a slight increase of power in the West, where women vote, as compared with the North and East. The reductions in the voting power of the states in the convention will be as follows: Alabama, 8; Arkansas, 3; Florida, 4; Georgia, 11; Louisiana, 8; Mississippi, 8; New York, 2; North Carolina, 3; South Carolina, 7; Tennessee, 3; Texas, 16; Virginia, 8; Hawaii, 4; Porto Rico, 2; Philippines, 2.

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Young, J. B.—*Battle of Gettysburg.* (Harpers.)—The most readable and satisfactory popular account.

II. POPULAR GOVERNMENT AND CURRENT POLITICS

ARTHUR N. HOLCOMBE

General Summary.—The year 1914 was marked by the continued progress of popular government. Although national issues and, above all, foreign affairs absorbed much of the attention of the general public, the advocates of the various progressive causes were active, especially the advocates of votes for women. At the November elections a larger number of measures relating to popular government were submitted to the voters than ever before. Measures relating to the initiative, referendum, or recall were submitted to the voters in a dozen states, and proposals to extend the electoral franchise to women in seven. In four states where measures relating to the initiative were before the people, the proposals were of a reactionary character, intended to restrict the power of the people to make use of the initiative already possessed by them. In no state, however, was there a proposal before the people to withdraw the suffrage from women.

The elections on the whole were less favorable to the various progressive causes than the elections of previous years since the rise of the modern progressive movement. The fulfilment of the legislative programme of the Wilson administration and the uneasiness produced by the great war brought a general desire for a period of "watchful waiting" with reference to the domestic progressive movement. Nevertheless, the initiative and referendum were adopted in one state, the recall in three, and equal suffrage for women in two. The reactionary proposals to restrict the use of the initiative were voted down in all the states but one. The present status of these and other progressive causes in the states is indicated in the accompanying table. There was little state legislation of a noteworthy character with reference to the direct primary in 1914, and although the establishment of a national system of presidential primaries by Federal legislation was recommended by the President to Congress, no action was taken. The subject of a general reform of the state government was more widely discussed than in previous years, and in four states the question of calling a constitutional convention was submitted to the people. In New York the people voted for a convention and delegates were chosen in November. In California, Indiana and South Dakota the voters declined to sanction the call. A complete record of the votes on the various constitutional amendments submitted to the people in November is given on another page (see VI, *Amendments to State Constitutions*).

The meeting of the New York constitutional convention in 1915 may prove one of the most important events of the year, so far as state government is concerned, although the subject of a general constitutional revision is certain to come up in other states. Above all 1915 bids fair to be an important year for the woman suffragists, since in the four great eastern states of Massachusetts, New York, New Jersey and Pennsylvania, the submission of constitutional amendments enfranchising women has been already once approved by the legislatures, and, if approved a second time by the legislatures meeting in 1915, the question will be submitted to more than three million voters in November, 1915.

Work of the State Legislatures.—There were regular sessions of the legislature in 1914 in only 12 states,

STATUS OF POPULAR GOVERNMENT

State[1]	Woman Suffrage	Initiative and Referendum[4]	Recall[7]	Direct Primary[5]	Presidential Preference Primary
New England					
Me.	....	1908[4]	....	1911	....
N. H.	....	....	....	1909	1913
Vt.	....	....	....	....	....
Mass.	**1915**	....	....	1911	1912
R. I.	....	....	....	....	....
Conn.	....	....	....	....	....
Middle Atlantic					
N. Y.	**1915**	....	....	1913	1913
N. J.	**1915**	....	....	1911	1911
Pa.	**1915**	....	....	1913	1913
East-North-Central					
Ohio	*1914*	1912	....	1908	1913
Ind.	....	....	....	....	....
Ill.	1913[2]	....	....	1910	1912
Mich.	....	1913	1913	1909	1912
Wis.	....	*1914*	*1914*	1903	1911
West-North-Central					
Minn.	....	*1914*	*1914*	1912	1913
Iowa	**1916**	**1916**	....	1907	1913
Mo.	*1914*	1908	....	1907	....
N. D.	*1914*	1914	1914	1907	1911
S. D.	*1914*	1898[4]	....	1907	1912
Neb.	*1914*	1912	....	1907	1911
Kan.	1912	....	1914	1908	....
South Atlantic					
Del.	....	....	....	....	....
Md.	....	**1915**[3]	....	1910	1912
Va.	....	....	....	1912	....
W. Va.	....	....	....	....	....
N. C.	....	....	....	....	....
S. C.	....	....	....	P.R.[6]	....
Ga.	....	....	....	P.R.[6]	....
Fla.	....	....	....	1913	....
East-South-Central					
Ky.	....	....	....	1912	....
Tenn.	....	....	....	1909	....
Ala.	....	....	....	P.R.[6]	....
Miss.	....	*1914*	....	1912	....
West-South-Central					
Ark.	....	1910	....	P.R.[6]	....
La.	....	....	1914	1912	....
Okla.	....	1907	....	1908	....
Tex.	....	*1914*	....	P.R.[6]	....
Mountain					
Mont.	1914	1906[4]	....	1912	1912
Idaho	1896	1912[4]	1912	1909	....
Wy.	1869	.....	...	1911	....
Colo.	1893	1910	1912	1910	....
N. M.	....	1911[3]	....	....	....
Ariz.	1912	1911	1911-12	1909–12	....
Utah.	1896	1900[4]	....	....	....
Nev.	1914	1904–12	1912	1909	....
Pacific					
Wash.	1910	1912[4]	1912	1907	....
Ore.	1912	1902	1908	1904	1910
Cal.	1911	1911	1911	1909	1911
Total.	12	19	11[7]	39	18

NOTE.—Dates in **boldface** are those of proposed submission to the people; the date *1914* in *italics* denotes rejection by the people in November.

[1] States are arranged by geographical divisions according to the classification of the U. S. census. [2] Women may vote for presidential electors and local officers, and for state officers if the office is created by statute. [3] The referendum only. [4] In six of the 19 states possessing the initiative and referendum, the initiative applies to statutes but not to constitutional amendments, viz., Maine, South Dakota, Montana, Idaho, Utah, and Washington. [5] In those states indicated by P.R. the direct primary is conducted under the rules of the Democratic party, but is not established for all parties by statute. [6] The form of the presidential primary varies widely in different states. See AMERICAN YEAR BOOK for 1913, pp. 72–74. [7] The recall is applied to judges in seven states.

and all these states were in the East or South. The volume of legislation relating to the topics usually treated under the head of "popular government" enacted by these legislatures was comparatively small. In most cases there was no legislation worthy of note in this connection. In Massachusetts the legislature adopted a new and more stringent Corrupt Practices Act, and provided for the submission to the people at the general election in November of a measure providing for the amendment of the direct-primary law by the abolition of party enrollment. This measure was accepted by the voters by a large majority. In Louisiana a constitutional amendment providing for the recall of all elective officers except judges was submitted to the voters, and in Mississippi the legislature provided for the submission at the November election of an amendment to the constitution establishing the direct popular initiative and referendum. In Maryland provision was made for the submission of an amendment establishing the referendum only.

Direct Legislation.—The use of the direct popular initiative in 1914 was greater than ever before, and when account is taken of the measures submitted to the people at the election of 1914 by legislative action during 1913 and of the measures enacted during 1913 and referred to the people in 1914 by means of the popular referendum, the total number of measures voted on by the people of the 48 states at the general election in November exceeded all previous records. California was the state in which the largest number of measures was submitted to the people, 48 in all. Of these 17 were measures initiated directly by the people, four were acts of the legislature referred to the people by popular petition, and 27 were

measures submitted to the people by the legislature. Most of these last were proposed constitutional amendments. One was a resolution to call a constitutional convention, a chief purpose of which was to rewrite the fundamental law in order that it might be less in need of continual amendment than at present. While the largest number of measures of all kinds was voted on by the people of California, the largest number of measures initiated by the people was, as usual, in Oregon. Nineteen of the 29 measures submitted to the people of that state were initiated directly by the people. Most of the measures initiated by the people in 1914 were social or economic rather than political in character, the most numerous and conspicuous measures relating to any one subject being those to regulate or prohibit the liquor traffic (see also XV, *The Liquor Problem*).

WOMAN SUFFRAGE

Progress in States.—The most prominent phase of the progress of popular government in 1914 was the progress of woman suffrage. Both in the separate states and in the nation as a whole the cause of votes for women was more insistently before the public than ever before. In seven states the question of extending the electoral franchise to women was submitted to the voters at the general election in November. In three of these states, Montana, Nevada, and South Dakota, the question was submitted by the legislatures in the form of a constitutional amendment, requiring the approval of a majority of those voting thereon for adoption. In one state, North Dakota, the question was submitted by the legislature in the form of a statute, requiring the approval of a majority of all the voters for adoption. In three states, Missouri, Nebraska, and Ohio, the question was submitted by the voters themselves under the constitutional initiative. In two other states, Massachusetts and New Jersey, the legislatures of 1914 approved the submission of the question, and, if submission is endorsed by the legislatures of 1915, the question will be submitted to the voters in the fall of the year. In three other states, New York, Pennsylvania, and Iowa, the submission of the question has also been approved by one legislature, and, if endorsed by the legislatures of 1915, the question will be submitted to the voters, in the two former states in 1915, and in the latter in 1916. Thus woman suffrage was a campaign issue, directly or indirectly, in no less than 12 states, among them five of the seven greatest states in the Union. In Illinois, where the women already have the presidential and municipal vote, the establishment of complete political equality for women at the earliest constitutional opportunity is pledged by all parties. At the general election in November woman suffrage was adopted in two states, Montana and Nevada. The total number of equal-suffrage states (counting Illinois) is now 12.

Progress in Congress.—In the nation as a whole the growth of interest in woman suffrage during 1914 was no less noteworthy than in the separate states. The two strongest organizations in the country concerned especially with women's problems are the General Federation of Women's Clubs, comprising the nearly two million organized club women of the country and representing better than any other single organization the special interests of the home, and the National Educational Association, comprising the public-school teachers of the country and representing better than any other single organization the special interests of women outside of the home. Each of these organizations at its national convention in 1914 for the first time formally endorsed woman suffrage. In Washington the cause of the woman suffragists was represented before Congress by the Congressional committee of the National American Woman Suffrage Association and by the Congressional Union, an independent organization which directs all its activities to the securing of a woman-suffrage amendment to the Federal Constitution. The House of Representatives, acting in obedience to a vote of the Democratic caucus,

declined to consider the submission of an amendment to the Federal Constitution, but in the Senate, where the Committee on Woman Suffrage reported in 1913 in favor of a constitutional amendment (*A. Y. B.*, 1913, p. 71), the question came to a vote on March 19.

The Susan B. Anthony Amendment.—The measure upon which the Senate vote was taken was the so-called Susan B. Anthony amendment, named for the woman who was most prominent among its original advocates. This proposed amendment provides that the right of citizens to vote shall not be denied or abridged by the United States or by any state on account of sex. It was first proposed nearly 50 years ago, when the Fifteenth Amendment, forbidding denial of the vote on account of race, color, or previous condition of servitude, was before Congress, and ever since then has been the ultimate goal of the woman suffragists. A majority of the Senators present and voting on March 19 voted in favor of the amendment, but it failed to obtain the constitutional majority of two-thirds. The actual vote was 35 in favor to 34 opposed. Of the 26 who were recorded as not voting, it was stated at the time of the vote that eight would have voted for the amendment, had they been present. Of the other absentees four were paired in favor of the amendment, although no special statement was made on their behalf. The total number of Senators in favor of the amendment was therefore presumably 47, one less than half the total membership of the Senate.

An analysis of the vote in the Senate throws some light on the state of public opinion with respect to the political equality of women. Of the Republican and Progressive Senators, 29 were in favor of the amendment and 15 were opposed; of the Democrats, 18 were in favor, 27 were opposed, and six were noncommittal. Of the 47 Senators favorable to the proposed amendment 19 represented woman-suffrage states, 12 represented states in which the question was directly or indirectly before the people in 1914, 12 represented other northern states, and four represented southern states. In other words, the Senators from the woman-suffrage states were practically unanimous in favor of the amendment, the Senators from the remaining states of the North and West were almost equally divided in opinion, and the Senators from the South were generally opposed. In short, the Republicans were more generally favorable to the amendment than the Democrats, but geographical rather than party lines seem to have been of most importance in determining the attitude of Senators. Regardless of their personal opinions with respect to woman suffrage, southern Senators were almost unanimous in their opposition to any interference by the Federal Government with the control of the suffrage by the people of the southern states.

The State Initiative Amendment.—In order to make it easier for southern Senators to support the cause of votes for women, the so-called Shafroth-Palmer amendment was introduced in the Senate on the day following the vote on the Susan B. Anthony amendment. This proposed amendment provides that, whenever not less than eight per cent. of the voters of a state petition for the submission of the question of woman suffrage to the voters of that state, the question shall be submitted, and, if a majority of those voting thereon shall vote in favor of woman suffrage, it shall be thereby established in that state. Under this amendment, if adopted, no state could be forced to extend the suffrage to women against the will of a majority of its male voters, but on the other hand nothing in the constitution of a state could prevent the submission of the question to the voters, if at least eight per cent. of them should so desire. Such an amendment, it was urged, could not be objectionable to the conscientious believers in states' rights, and could be consistently supported by many Senators who had voted against the Susan B. Anthony amendment. It would have the merit, from the standpoint of the advocates of votes for women, if adopted, of facilitating the submission of the question to the voters in those states in which constitutional restrictions upon the process of state constitutional amendment make submission under present

conditions extraordinarily difficult. The advocates of votes for women, however, are not agreed as to the expediency of pressing two different proposals upon Congress at the same time, and in fact they did not succeed during the remainder of the session in bringing either of the measures to a vote in either house subsequently to the vote of March 19. Late in December, however, the advocates of votes for women induced a majority of the House Committee on Rules to report a resolution bringing the Susan B. Anthony amendment to a vote in the House. The amendment was rejected on Jan. 12, 1915, by a vote of 174 to 204.

Tactics of Suffrage Advocates.—Hitherto the advocates of votes for women have relied for success chiefly upon direct argument before Congressional and legislative committees and political conventions, reinforced by appeals to public opinion, and all based upon a systematic and persistent campaign to educate the general public. Most of the work, indeed, has been primarily educational rather than political in character. In 1914 a change was made in these tactics. Toward the close of the session of Congress and prior to the general elections, the Congressional committee of the National American Woman Suffrage Association issued a public statement containing the names of nine Senators and nine Congressmen, who were described as conspicuously active in their hostility to woman suffrage, and calling upon the believers in the cause to prevent these men from returning to Congress. Of the 18 men whose names appeared on this suffrage blacklist, 13 were Democrats, although the statement declared that they were not blacklisted as Democrats, but solely as enemies of woman suffrage, and, in certain cases, of other measures advocated by women. Some of the men were not candidates for reëlection in 1914, and others had already been renominated in districts where a nomination at the primary is equivalent to election. One of the men, a Republican Congressman from Illinois, promptly announced that he was in favor of woman suffrage. Otherwise the publication of the blacklist apparently had no immediate direct effect on the results of the election, although its more remote indirect effect on future votes in Congress may be greater.

The Congressional Union, an organization of women resolved upon the employment of tactics primarily political in character, decided to blacklist the entire Democratic party, rather than a few selected individuals regardless of party. This decision was justified on the ground that the Democratic party, as such, had controlled both branches of the Sixty-third Congress, and hence was alone responsible for the failure of that Congress to submit a woman-suffrage amendment to the states. Although the Democrats did not possess the two-thirds majorities in both branches, which are necessary for the submission of a constitutional amendment, yet the refusal of the Committee on Rules in the House to permit the question to come to a vote, it was argued, clearly revealed the hostility of the Democratic party. The leaders of the National American Woman Suffrage Association, on the other hand, publicly opposed these tactics, alleging that it was unfair to punish individual Democrats for action taken by their party contrary to their personal opinions. The attempt of the Congressional Union to secure the defeat of Democratic Senators and Representatives in the equal-suffrage states by women's votes was apparently not successful, as only one of the Democratic candidates for reëlection in those states was defeated in November and his defeat was by too narrow a margin to enable any one organization to claim the credit therefor.

Immediately after the election the National American Woman Suffrage Association held its annual convention at Nashville, Tennessee, and discussed the expediency of changing its tactics, and especially that of endorsing the states-rights amendment proposed by its Congressional committee earlier in the year. The convention voted to authorize the Congressional Committee to use its own discretion with respect to the support of amendments before Congress, and also voted that woman suffrage should not be made a partisan issue.

THE INITIATIVE, REFERENDUM AND RECALL

Initiative and Referendum.—The purely political question submitted to the decision of the people in the greatest number of states in 1914 was that of the adoption or use of the direct popular initiative and referendum. In nine states measures were submitted to the people relating thereto. In five of these states, namely, Minnesota, Mississippi, North Dakota, Wisconsin, and Texas, measures were submitted providing for the establishment of the initiative and referendum, while the Maryland legislature provided for the submission of an amendment in 1915 establishing the referendum but not the direct popular initiative. The Wisconsin and Minnesota plans for the initiative have already been described in the YEAR BOOK (1911, p. 183; 1913, p. 76). The Mississippi measure is not radically different from that submitted to the people of that state in 1912, which was approved by a large majority of those voting thereon, but failed to receive the affirmative votes of a majority of all those participating in the election, as required for adoption under the constitution of that state. The amendments proposed in North Dakota and Texas are conservative measures containing no special features of general interest. In Arizona, California, Colorado, and Missouri, measures were submitted providing for the restriction of the use of the direct popular initiative already existing in those states. In the three former states the restrictions were aimed at the use of the initiative by the prohibitionists; in the latter, they were aimed at its use by the single-taxers. In all four the nature of the limitations was the same, namely, to forbid the resubmission within a specified period, usually six or eight years, of any measure that has once been submitted to the people and rejected by them. In Arizona another measure was submitted providing that no measure adopted by the people should be amended or repealed by the legislature, thus making it necessary that, when the people have once legislated on a subject, all further legislation on that subject, even of the most trivial character, if altering in any way the original enactment of the people, be enacted by the people themselves. The inconvenience of such a practice was pointed out in the official campaign bulletin, as well as the needlessness of further restricting a legislature already subject to control through the initiative, referendum, and recall, but the measure was adopted by the people. In two of the states where the question of adopting the initiative and referendum was submitted to the people, namely, Mississippi and North Dakota, the people voted in favor of its adoption, and in all of the states where it was proposed to restrict the scope of the existing power of initiative, the people voted adversely. In California, where the prohibition amendment was defeated by a large majority, the restrictions upon the power of initiative were also defeated. In Arizona and Colorado prohibition was successful and the restrictions upon the initiative were rejected. In Mississippi the amendment again failed to receive a majority of the votes cast in the election although it was approved by a majority of those voting thereon.

The Recall.—The recall was submitted to the people in 1914 in four states by the previous action of their legislatures, namely, Kansas, Minnesota, North Dakota, and Wisconsin. The recall provisions proposed in these states have already been discussed in the YEAR BOOK (1913, pp. 78-79). The recall was also submitted in Louisiana by action of the legislature of 1914. In three of these states, Kansas, Louisiana and North Dakota, the measures submitted were approved by a majority of those voting thereon. In one of the states, Minnesota, a measure limiting the power of judges to declare statutes unconstitutional was also submitted to the people (*A. Y. B.*, 1913, p. 79), but was not adopted. In Minnesota large majorities were cast in favor of all the progressive measures submitted to the people, but they failed of adoption because they failed to receive majorities of all the votes cast at the election.

REORGANIZATION OF STATE GOVERNMENT

The Demand for Reform.—The progress of the initiative, referendum and recall has raised the question of a general reform of the structure of state government (see *A. Y. B.*, 1913, pp. 80-82). In 1914 this question was discussed by the governors' conference, held at Madison, Wis., in November, but no formal action was taken.

There are two methods of proceeding to a general revision of a state constitution. One is to call a constitutional convention. The question of calling a constitutional convention was submitted in 1914 to the voters in four states, California, Indiana, New York, and South Dakota. In New York the call was approved at a special election in the spring, and the delegates were elected in November. The other mode of proceeding to a revision of a state constitution is by the use of the direct popular initiative. This is the mode that has been preferred in Oregon, where comprehensive plans have been submitted at recent elections upon the initiative of the People's Power League. (See also *A. Y. B.*, 1910, p. 154; 1912, p. 68; 1913, p. 81.)

Oregon.—The Oregon People's Power League resumed in 1914 its attempt to reform the state government. The plan of 1914 was much less comprehensive than the rejected plans of 1910 and 1912, since it made no attempt to reform the executive branch of the state government or alter the relation between executive and legislature. The plan of 1914 provided merely for the abolition of the state senate, a corresponding shortening of the ballot, and the election of the members of the house by a system of proportional representation. Yielding, however, to the criticisms of those who objected to the total disregard of the principle of locality as a basis of representation, the League materially modified its original proposals for proportional representation. The proxy system of proportional representation was abandoned, and instead the League proposed what is in substance a form of limited voting. Under this plan, candidates must be nominated in districts, as heretofore, and the names of the candidates may appear on the official ballot only in the districts in which they are nominated, respectively. The voter, however, may vote for any candidate in any district, but he may vote for one only. In order to vote for a candidate nominated in another district, the voter must write in the name or use a sticker. The 60 candidates who receive the greatest number of votes throughout the state shall be thereby elected. At the election in November, however, this plan was rejected by the voters.

Abolition of State Senates.—Proportional representation was not before the people in any other state than Oregon in 1914, but the proposal to abolish the state senate and make the legislature a single body has been growing in favor elsewhere. The proposal made by Governor Hodges of Kansas has already been discussed in the YEAR BOOK (*A. Y. B.*, 1913, p. 81). In 1914 a legislative committee in Nebraska reported that a constitutional amendment should be submitted to the people of that state abolishing the bicameral legislature and substituting a legislature consisting of a single chamber. No action has yet been taken, however, either in Nebraska, or in any other state.

The Short Ballot.—The reform which aims to reduce the number of elective officers either by abolishing them or more generally by removing to the appointive class those whose duties are purely non-political, is known as the short-ballot movement. In 1913 a measure of reform very satisfactory to the short ballot advocates was submitted to the voters in Ohio (*A. Y. B.*, 1913, p. 80) but was rejected. During 1914 little progress has been made in the field of state government, although much progress has been made in the field of municipal government (see VII, *Municipal Government*). The outlook for 1915 in the field of state government is more promising. The best opportunity of the short-ballot advocates seems to be coming in connection with the meeting of state constitutional conventions. In New York, for example, where a convention will meet in the

spring of 1915, the principle of the short ballot was strongly endorsed by the Progressive state convention of 1914, and at the Republican state convention was well received, while the Democrats were inclined to be rather noncommittal. The constitutional convention in New York will be controlled by the Republicans and doubtless will be the scene of a thorough consideration of the claims of the short-ballot advocates.

Proportional Representation. — The voters of Oregon have now been called upon at three successive elections to consider the adoption of some system of proportional representation, and on each of these occasions a different system was submitted to them (see *supra*). It is not surprising that the Oregon voters have become suspicious of the subject. In fact no one of the systems of proportional representation submitted to the voters of Oregon is endorsed by the advocates of proportional representation in other parts of the United States. The ideas of the leading advocates of proportional representation in the country are set forth in an article entitled "Effective Voting," by C. G. Hoag, general secretary of the American Proportional Representation League, and published by authority of Congress (S. Doc. 359, 63d Cong., 2d sess.). In this article the author describes three systems of proportional representation respectively, the Hare system, the list system, and the schedule system. The two former, however, are the only systems now actually in use.

The Hare System.—The Hare system, so called from its originator, Thomas Hare, was the first in the field and has been advocated in England for over 50 years (see J. S. Mill, *Considerations on Representative Government*). It is the system which is proposed for the election of the Irish Senate in the act providing home rule for Ireland, and has been established in Denmark, in South Africa, and in Tasmania, Australia. Under the Hare system electoral districts are so arranged that each shall return several representatives, seven, nine or more being commonly suggested. Candidates for election are nominated by petition and arranged on the ballot in alphabetical or any other satisfactory order. The voter indicates his first choice by marking the figure one after the name of his first choice, his second choice by the figure two, and so on as far as he has any choice between the candidates. The count proceeds in the following manner. First, the election officers compute the quotient or "quota" obtained by dividing the total number of votes cast by the total number of candidates to be elected plus one. All those candidates for whom a number of first choices is indicated in excess of the quota are declared elected forthwith. All ballots marked in the first instance for a successful candidate and not required to make up his quota are then transferred to other candidates whose quotas are not yet complete in accordance with the second or other choices indicated. If full quotas are not thereby obtained for a sufficient number of representatives the next step is to drop the candidate who has the smallest total of first and other choice ballots to his credit and distribute his ballots among the unelected candidates remaining in the contest in accordance with the choices indicated thereon. This process of elimination and redistribution is kept up until the proper quotas have been obtained for the required number of representatives or until no more candidates remain than there are representatives to be chosen. These remaining candidates are thereupon declared elected.

Such a system of election is intended to produce a representative body wherein each individual representative will represent substantially the same number of voters. The result of such a system is that every group of voters large enough to form a quota may secure the election of their own personal representative, regardless of the fact that such a group may constitute but a small minority of the total number of voters in the district. The system is therefore sometimes called minority or personal representation, and is advocated by those who believe that a representative body should reflect accurately the various shades of opinion in a community instead of the opinion of the majority mainly. Of course the ad-

vocates of proportional representation do not assert that minorities are not now represented at all in legislative bodies. Their charge is that the amount of representation accorded to minorities under the present system is a matter of chance, and may be (and indeed often is) very inequitable. (Many of the arguments for and against proportional representation may be found in the Oregon official election bulletins for 1910, 1912, and 1914, in connection with the schemes of proportional representation submitted to the voters of that state in those years.)

The List System.—The list system is in use in Belgium, Sweden, Finland, and Switzerland, and has been seriously considered for adoption in France. It is based upon the assumption that nominations will actually be made by political parties, and that the chief requisite in a system of proportional representation is that it secure for each party a share of the seats in the legislature corresponding to its proportion of the total popular vote. The ballot is prepared and the count is conducted variously in different countries, but the underlying principle is the same everywhere. The voter votes for a party ticket and the count is so conducted that that number of representatives shall be chosen from among the candidates of a party to which the party is entitled by virtue of its voting strength.

Proportional representation in one or the other of the above forms is advocated for use in the election of municipal councils more widely than in connection with state or Federal elections, but has not yet been introduced in connection with any public elections in the United States. In Illinois, however, a crude form of proportional representation, called limited voting, has been in use in connection with the election of members of the lower branch of the state legislature for 40 years. Each senatorial district is entitled to send three representatives to the house, and each voter is entitled to vote for one representative only. Thus, unless the majority party controls at least three-fourths of the votes in a senatorial district, the minority party is certain to secure one of the seats, provided it concentrates its voting-strength on one candidate. This system, however, affords no special advantage to minor parties, and in practice simply means that control of the nominating machinery in the two major parties is somewhat more important than would be the case under the ordinary system of plurality elections.

ELECTORAL REFORM

Nominating Systems.—There was little legislation in 1914 with reference to nomination for public office, but much evidence of discontent with the operation of existing systems of nominations. In many states the large number of candidates at the primaries was felt to throw an excessive burden on the voters; and the success of machine candidates in securing nominations at the primaries was felt to make the burden of the primary system a useless one. In general, however, the prevailing feeling was to give the system a further trial. In Oregon, however, a measure was submitted to the voters under the initiative providing for the election of delegates to special nominating conventions to be held before the primaries for the purpose of facilitating agreement by members of the same party upon slates of candidates for the official party nominations at the primaries. It was argued in support of the measure that the existing system was demoralizing the political parties without affording the people adequate protection against the nomination of party candidates by minorities within the parties. The measure, however, was rejected by the people.

Primary Elections.—The state legislation of 1914 relating to the direct primary is noteworthy chiefly for the evidence it affords of the steady progress of the idea of non-partisanship. By the end of 1913 ten states had made provision for non-partisan methods of nominating and electing judges (*A. Y. B.*, 1913, p. 75), and others had made similar provision with respect to the nomina-

tion and election of delegates to constitutional conventions. In 1914 a constitutional amendment was submitted to the people by the legislature of California providing that delegates to future state constitutional conventions should be nominated in a special non-partisan primary and elected without the appearance of any party designations on the ballot. In Oregon a measure was submitted to the people by direct popular initiative providing that judges should not be nominated at the primaries, and that political parties should make no nominations for judicial offices. A candidate for a judicial office may have his name printed on the ballot at the general election by filing a petition, and it is proposed to award the office to the candidate securing a plurality of the votes. Such a system of election facilitates the choice of officers by minorities, and the elimination of judicial officers from the primary ballot, as proposed in Oregon, would therefore afford an excellent opportunity for the employment of preferential voting at the final election.

Preferential Voting.—The nature of preferential voting and various methods of conducting preferential elections have been described in the YEAR BOOK (1912, p. 69). Up to the close of 1913 preferential voting in connection with the nomination of partisan candidates for public office had been established in one form or another in six states, Arizona, Florida, Idaho, Minnesota, North Dakota and Wisconsin, and in connection with the final election of public officers had been proposed, though rejected by the people, in Oregon.

Various systems of preferential voting continued during 1914 to make rapid progress in connection with municipal elections (see VII, *Municipal Government*), but were not introduced into any additional states in connection with state elections. In one state, however, California, a constitutional amendment was submitted to the people at the November election, authorizing the adoption of preferential voting in any primary or general election by special municipal or county charter or by general law. The object of the amendment, as stated in the official election bulletin, was to make possible the adoption, when desired, of a preferential system of electing officers where such are chosen as non-partisans, and of nominating party candidates where officers are chosen as partisans. While the details of various preferential plans are acknowledged to differ, the underlying principle is declared to be the same. Nomination is by a small petition. The ballots are so printed that the voter may designate a second (and under some systems a third) as well as a first choice. If any candidate receives a majority of all the first choices he is thereby elected. If no one receives such a majority, the candidate with the lowest number of first choices is dropped, and the second choices of those who voted for him as first choice are added to the first-choice votes of the candidates remaining. This process is repeated until some one has secured a majority of all the votes cast and counted, and so is elected.

If applied to non-partisan elections, the statement prepared on behalf of the California legislature recommending its proposed amendment to the voters declares, much of the personal bitterness of political campaigns will be prevented, because no candidate, knowing that his election may require the second choice votes of the supporters of other candidates, is going to deliberately estrange such voters by uncalled-for attacks on such candidates. "In operation the preferential system," it is further declared, "has proved simple for the voter and satisfactory to the community, and also a great money-saver." If applied to partisan primaries, the selection of party candidates, supported by a majority of all the electors of each party participating in the primary, is assured. Without such a system the candidate may be nominated by a small minority. "Such a possibility," the statement continues, "is now used by leaders and bosses to dissuade more than one of their faction from seeking nomination, for fear that another group, though smaller, may, by concentrating on one candidate, win the nomination. Under preferential voting there is no danger of minority nomi-

nation, hence no such reason for preventing candidacies." In Florida, where in 1913 (*A. Y. B.*, 1913, p. 75) the same system of preferential voting as that outlined above was applied to the primary elections, the counting was simplified by providing that if no candidate should receive a majority of the first choices, all candidates but the two with the greatest number of first choices respectively should be dropped, and the election then decided by distributing the ballots cast in the first instance for the dropped candidates between the two remaining candidates according to the second or other choices indicated thereon. This system accomplishes precisely the same result as would be accomplished by a non-partisan primary election followed by a second election at which the only candidates are the two receiving the largest votes at the primary. Clearly it is a system which is less laborious for the candidates, less troublesome to the voters, less disturbing to the public generally, and less expensive to the state than any system involving two separate elections. By adopting more refined methods of counting the ballots, the accuracy with which the will of the voters is expressed may be increased, though not without also increasing the complexity of the count.

Absent Voting.—At every election many voters fail to record their votes. An actual vote of 90 per cent. of the total registration is about the maximum attainable, and at ordinary elections in the North and West a vote amounting to from 70 to 75 per cent. of the registration is the normal result. At unimportant, special, or local elections the number of votes cast is likely to form a much smaller proportion of the total registration. This failure of many voters to cast their ballots, especially in unimportant or uneven elections, has been ascribed to indifference, and a corrective for such indifference which has found favor in certain quarters is so-called compulsory voting. If it should be provided by law that a poll-tax should be assessed against every legal voter, and should be refunded to every voter who should attend the polls and cast a ballot, a form of compulsory voting would thereby be established. It is apparent, however, that the voter could not be prevented from casting a blank ballot without violating the secrecy of elections. Hence the system in practice means compulsory attendance at the polls under penalty of a fine, but does not actually mean compulsory voting. A system of compulsory attendance at the polls under penalty of a fine has existed in Belgium, but, although not without advocates in the United States, has not yet found much favor here.

Investigation into the causes of absence from the polls has shown that many voters fail to vote because of absence from the place of legal residence on the day of election. In certain election districts inhabited by the more intelligent classes of voters it has been found that in as many as half the cases where the voter has failed to attend the polls the cause has been his temporary absence from home. Many of the absentees are commercial travelers, and in some cases a change in the day of holding elections from Tuesday to Monday would afford the voter the opportunity to vote which is now denied him on account of the nature of his occupation. In other cases, as in the cases of students, railroad employees and of workmen of many kinds who are employed temporarily at a distance from their homes, no mere change in the day of election will afford adequate relief. Compulsory voting, so-called, would obviously be ineffective and unjust. No adequate relief in such cases can be afforded except by some system of voting *in absentia*.

There are three different methods of making provision for voters who are unavoidably absent from the polls on the day of election. One is to allow the absent voter to go to any polling-place anywhere and cast his ballot, which is then forwarded to the proper election officers in the district in which the voter's legal residence is situated. A second method is to allow the absent voter to send his ballot to his home precinct by mail. The third is to allow the voter who expects to be absent on election day to vote in his own precinct be-

fore leaving home. These three methods may be designated respectively as absent voting, postal voting, and early voting. Some method of enabling absentees to vote has been provided by law in Australia, New Zealand, Norway, the Swiss cantons of Berne and Zurich, and in five of the American states, Kansas, Minnesota, Missouri, Nebraska and North Dakota. Kansas was the first American state to legislate on this subject, the other four states following in 1913. In four of these states, the method which has been adopted is that which is designated above as the method of absent-voting. In Kansas, Missouri, and Nebraska the absent voter may proceed to any convenient polling-place and subscribe to an oath or affidavit stating that he is a legal voter in a specified precinct. In Minnesota the absent voter is further required to identify himself by some properly certified paper from his home-precinct. The voter may then cast his ballot and the election officers at that polling-place must forward it to the precinct where it is to be counted. In North Dakota the absent voter may have his vote recorded either by mailing it to the proper election officers or by casting it before leaving home. No legislation was enacted by any state legislature in 1914 to make provision for absent voters, but in one state, California, a measure providing for absent voting was submitted to the people at the November election by direct popular initiative, and in another state, Michigan, a constitutional amendment was submitted by the legislature to enable students to vote at the precincts containing their places of study instead of at their home-precincts.

THE NATIONAL PRESIDENTIAL PRIMARY

The President's Message. — The most important aspect of the progress of the direct primary at present is its extension to the nomination of candidates for President and Vice-President. President Wilson, in his annual message to Congress in December, 1913 (*A. Y. B.*, 1913, pp. 27, 74), recommended the national regulation of presidential nominations. In particular he recommended that such nominations be made in the first instance directly by the people at primary elections and that the function of the national convention be restricted to the ratification of the nominations made by the people and the adoption of a platform. This action by the President created an expectation that the Democratic party leaders in Congress would take the matter up and prepare bills for enactment by Congress, but no action was taken either by Congress or by the Democratic Congressional leaders during the session of 1914 for the purpose of carrying out the President's recommendations. Several bills, however, were introduced by private members, both at the first and at the second sessions of the present Congress, with the same object as that expressed in the President's message.

The Ferris Bill.—The first bill to be introduced providing for presidential primaries was that of Congressman Ferris of Oklahoma, a Democrat (H. R. 1687, 63d Cong., 1st sess.). This bill provided (1) that delegates to all national conventions having for their purpose the nomination of candidates for President and Vice-President should be selected directly by the members of the respective parties; (2) that each voter belonging to a party or making oath that he expects to affiliate with that party at the next general election should have the right to indicate at the primary his first, second, and third choices for the Presidential nomination; (3) that the apportionment of delegates among the states should be based either upon the population of the states, respectively, or upon the vote of the states for the party candidates at the last preceding election, at the discretion of the national committees of the several parties; (4) that the time and place of national conventions should be fixed by the respective national committees; (5) that the conventions should have power to adopt the official party platforms; (6) that the date of the primary elections in the states should be fixed by the state party committees, the actual conduct of the primary to be

regulated by state law; (7) that the delegation from each state to the national convention of any party should cast its vote as a unit for the candidate for whom the greater number of voters in that state should have indicated a first choice, and that it should continue so to vote for not less than 25 successive ballots, and in no case should vote for any but the first, second, or third choice of the voters of its state unless so requested by a majority of the state committee representing the party in that state; (8) that the candidate of the convention should be that one of the popular candidates who should first receive a majority of votes in the convention and who should also receive the largest vote in a majority of the states; (9) that the governors of the states should have power to enforce the law in case of neglect by the legislatures; and (10) that the result of the primaries in the states should be certified by the governors respectively to the national committees of the several parties.

The Ferris National Presidential Primary bill serves very well the purpose of revealing the difficulties attendant upon any attempt to extend by Federal legislation the principle of the direct primary to the nomination of candidates for the Presidency. The first provision of the Ferris bill is open to criticism because it applies to all parties without distinction, thus extending privileges to and placing burdens upon minor organizations not of national importance. The second provision would establish throughout the Union the so-called open primary, and would be objectionable in many states in which a system of party enrollment has been established by law. The third provision would invalidate both the system of apportionment that has been followed by all the major parties in the past and also the new system proposed by the Republican National Committee for adoption for the national convention of 1916 (see *A. Y. B.*, 1913, p. 62; and I, *Politics and Parties*). The fourth provision would enable a national committee to call a snap convention, or otherwise abuse its power, a practice which most states have found it necessary to regulate by law, so far as the dates of state conventions are concerned. The fifth provision would not regulate in any way the *personnel* of the convention and hence would not carry out the idea suggested by President Wilson, that the convention should be composed mainly of persons who would be themselves actually candidates for election, thus putting it in the power of the candidates to control the making of their platform. The sixth provision would place the responsibility for conducting the primaries upon state political committees and legislatures, the former of which are not amenable to Federal control except in so far as they are concerned with the election of Congressmen, and the latter of which are not amenable to control by Congress at all. The seventh provision would reduce the delegates almost to the position of dummies, putting the major portion of such discretionary authority as is left to the convention into the hands of the state committees, whose election would not be regulated by the law. The eighth provision is not altogether clear, but was apparently intended to have the effect of restricting the nomination to the candidate carrying the majority of the states in the primary, if any one candidate should be so fortunate as to carry a majority of the states, and otherwise of empowering the convention to agree, if possible, upon a candidate who should be returned as the first, second, or third choice of a majority of the states. The ninth and tenth provisions would be open to the same objection as the sixth. Thus there is not a single provision in the Ferris bill in its original form which would escape hostile criticism or give general satisfaction to the advocates of the national regulation of the Presidential nominating machinery. It is evident that the establishment of a system of Presidential primaries by Federal law is an undertaking fraught with exceptional difficulties.

Other Presidential Primary Bills.—Several of the other bills introduced into the Sixty-third Congress for the purpose of regulating the nomination of candidates for the Presidency contain more evidence than the Ferris bill that the difficulties surrounding

the problem of establishing a national system of presidential primaries have been appreciated. These bills fall into two main classes: (1) those which would preserve the national convention and provide for the instruction of delegates by the voters and the observance of instructions by the convention; and (2) those which would do away with the convention and provide for the nomination of presidential candidates directly by the voters. The best examples of the former class are the Hinebaugh (H. R. 6059) and Sherman (S. 2309, S. 3922) bills; of the latter, the Lafferty (H. R. 2908) and Cummins (S. 773) bills.

Regulation of the National Convention.—The Hinebaugh bill, introduced on behalf of the Progressive party, attempts to meet several of the difficulties pointed out in connection with the Ferris bill. It defines a political party as an organization casting five per cent. of the total vote in any state or 25 per cent. of the total vote of the nation. In the former event its existence is to be recognized only in the states in which the necessary vote has been cast, in the latter event its existence must be recognized throughout the Union. Thus the bill would apply only to parties of major importance, and minor or new parties could continue to manage their own affairs, as heretofore. The Hinebaugh bill further provides that the apportionment of delegates shall be as follows: one delegate for each Congressional district and one for each 10,000 party votes, or major fraction thereof, in excess of 10,000 in any district. The apportionment of delegates is entrusted to a board of national election commissioners, to be appointed by the President. Delegates to the national conventions may be nominated by any 100 party voters in the respective districts, and may pledge themselves to support a certain candidate for nomination, but the candidates for nomination have power to restrict the number of delegates pledged to them in order that there may not be a greater number in any district than that to which the district may be entitled. The primary elections for the choice of delegates in the states are to be conducted by state election officers under authority of state laws, provided the state laws are in substantial conformity with the principles of the Hinebaugh bill. Otherwise the board of national election commissioners shall itself conduct the primary elections. Delegates to a national convention shall be bound to cast their votes on the first ballot for the candidate to whom they are pledged. If no candidate receives a majority, the delegates are then free to name any candidate who received any votes on the first ballot.

The Sherman bill differs from the Hinebaugh bill mainly in recognizing any primary laws that may exist in the states, whether or not they conform to the model set up in the legislation of Congress. In states where there is no state primary law the national committees of the major parties are authorized to issue a call for party primaries under party management; and in states having primary laws but no provision for Presidential primaries, it is declared lawful for the state primary officers to print the names of delegates to national conventions on the regular primary ballot. Clearly the intent of both these bills is to encourage the states voluntarily to adopt the Presidential primary system, and to supplement state by Federal legislation only where necessary. The Hinebaugh bill, however, goes further than the Sherman bill in the direction of establishing a uniform system throughout the country.

Abolition of the National Convention.—The Lafferty and Cummins bills propose a much more drastic regulation of Presidential nominations by the Federal Government. Both provide that uniform Presidential-primary elections shall be held in all the states, and that the voter shall indicate his choice for Presidential candidate directly without the intervention of any delegate to a national convention. Candidates for the Presidential nomination of any party may have their names printed on the official primary ballot in all parts of the country by filing a petition signed by one-half of one per cent. of the voters of the appropriate party in each of at least five states and in the

aggregate by not less than one-fourth of one per cent. of the total party vote. The primary ballot shall contain separate columns for names of the candidates for nomination by the several parties and an additional column for independent candidates. The primary elections in the several states are to be conducted by the regular primary or general election officers, and the votes cast in the several states are to be counted and certified by the state officers to a national canvassing board for primary elections, to be appointed by the President and to consist of one representative from each of the major parties. This national canvassing board will canvass the returns from the several states and finally determine which candidates have been nominated by the several parties.

The chief difference between the Lafferty and Cummins bills consists in the method of determining the results of the primary. By the former bill, the vote of each state is to be the same as its vote in the Electoral College, and is to be cast as a unit in accordance with the preference of the party voters in the state. The official party candidate will be that one of the candidates for nomination who receives a plurality of the votes of all the states. By the latter bill, the official party candidate will be that one of the candidates for nomination who receives a plurality of popular votes in the nation-wide primary. The former bill would not alter the present distribution of power with respect to Presidential nominations between the various sections of the country; the latter would reduce the influence of those parts of the South where the negro vote has been eliminated, and increase the influence of those parts of the North and West where the vote has been extended to women. The former would establish the system of counting the vote of each state as a unit for all parties; the latter would completely destroy the influence of state lines with respect to the making of Presidential nominations.

Constitutionality of the National Presidential Primary.—The last two bills provide for a uniform nation-wide Presidential primary under direct national control. The Hinebaugh and Sherman bills, on the other hand, contemplate the eventual establishment of a tolerably uniform national system of Presidential primaries by state legislation. The question arises, whether the former plan is in accordance with the Federal Constitution. Under the Constitution Congress is not expressly authorized to regulate at discretion the nomination of Presidential candidates. It is expressly authorized only to determine the time of choosing Presidential electors and the day on which they shall give their votes, while the states are expressly authorized to appoint electors in such manner as the legislatures thereof may direct. From the power to appoint electors the states deduce the power to provide for the nomination of electors and of Presidential candidates of political parties which the electors tacitly pledge themselves to support. There seems to be no ground here for Federal regulation of the process of making Presidential nominations. If this interpretation of the Constitution be correct, Congress has no power to do more than outline a system of Presidential primaries to be actually established by state legislation, as is contemplated by the Hinebaugh and Sherman bills, and the enactment of such measures as those introduced by Congressman Lafferty and Senator Cummins would be unconstitutional, unless the Constitution were previously amended. This situation has added strength to the already growing demand for an amendment to the Constitution which shall abolish the Electoral College and establish in its stead some system of direct election of the President by the people. During the first session of the Sixty-third Congress a proposed amendment providing for the direct nomination and election of the President by the people was introduced by Representative Britten (H. J. Res. 90), but no action has been taken thereon.

Literature.—The most important book of the year dealing with popular government is Herbert Croly's *Progressive Democracy* (Macmillans); Walter Lippmann's *Drift and Mastery* (Mitchell Kennerley) should also be consulted.

III. INTERNATIONAL RELATIONS

Charles Edward Asnis

INTERNATIONAL RELATIONS OF THE UNITED STATES

MEXICO

The Crisis and Mediation.—A narrative of the events which brought the United States to the verge of war with Mexico is given in another department (see I, *American History*). Every indication pointed to an armed conflict. Vera Cruz had been occupied, a military expedition was at sea bound for Mexican shores, and Congress had recorded its authorization of the President

in the employment of the armed forces of the United States to enforce the demand for unequivocal amends for affronts and indignities committed against the United States.

The crisis was relieved by the offer of mediation made by the Governments of Argentina, Brazil, and Chile. The situation was thus entirely changed before the American military expedition reached Mexican territory. On April 25 the Ambassador of Brazil, Dr. Domicio da Gama, the Minister of Argentina, Dr. Romulo S. Naon, and the Minister of Chile, Sr. Eduardo Suarez, made the following tender of good offices to the Government of the United States:

With the purpose of subserving the interests of peace and civilization in our continent and with the earnest desire to prevent any further bloodshed, to the prejudice of the cordiality and union which have always surrounded the relations of the Governments and peoples of America, we, the plenipotentiaries of Brazil, Argentine, and Chile, duly authorized thereto, have the honor to tender to your Excellency's Government our good offices for the peaceful and friendly settlement of the conflict between the United States and Mexico.

Secretary Bryan at once accepted on behalf of the United States in the following terms:

Conscious of the purpose with which the proffer is made. this Government does not feel at liberty to decline it. Its own chief interest is in the peace of America, the cordial intercourse of her republics and their people, and the happiness and prosperity which can spring only out of frank, mutual understandings and the friendship which is created by common purpose.

The generous offer of your Governments is therefore accepted. This Government hopes most earnestly you may find those who speak for the several elements of the Mexican people willing and ready to discuss terms of satisfactory, and therefore permanent, settlement. If you should find them willing, this Government will be glad to take up with you for discussion in the frankest and most conciliatory spirit any proposals that may be authoritatively formulated, and will hope that they may prove feasible and prophetic of a new day of mutual coöperation and confidence in America.

It will be seen that the scope of the offer was considerably extended by the acceptance. The acceptance was so worded as to include not only the "conflict between the United States and Mexico" but the whole Mexican situation, and the bearing of the "several elements of the Mexican people" in order that a "permanent" settlement might be had. The intent was plain. The Administration indicated that the participation of the Constitutionalists was not only desirable but necessary; that the inquiry into the international situation, namely, that between the United States and the Government of General Huerta, was

too narrow; and that the internal problems of Mexico were equally important for the conclusion of a permanent settlement of Mexican affairs.

Complete relief from the crisis required the acceptance of mediation by General Huerta. He yielded to the pressure of the Governments of Great Britain, Germany and France, and on April 27 Señor Riano, the Spanish Ambassador at Washington, announced that Huerta had accepted mediation "in principle." On April 29 General Carranza, First Chief of the Constitutionalists, announced his "acceptance in principle," reserving, however, the right to inquire into details.

Difficulties of the Mediators.—The task of the mediators required infinite tact and patience in composing the differences involved in the tripartite situation. At the very outset the mediators were confronted by the determination of President Wilson that a condition to American participation in the conference should be the elimination of Huerta from authority in Mexico. It is said that the mediators appealed to the Governments of Great Britain, Germany and France with reference to the President's stand and that these Governments declined to interfere. The first idea of the mediators was to secure the suspension of hostilities in Mexico, particularly those between the Huertistas and the Constitutionalists; this accomplished, the plan called for the invitation to the Government of the United States, to the Government of General Huerta and to the Constitutionalists to send their delegates to a conference to be held at Niagara Falls, Canada. On April 30, Secretary Bryan announced that General Huerta had agreed to an armistice and that military operations between the United States and General Huerta were suspended. General Carranza remained ominously silent on the question of an armistice between himself and General Huerta. Tampico was about to fall to his army, and he was planning an attack on Saltillo. He pressed his military advantage, knowing that Huerta was embarrassed by the American occupation of Vera Cruz. The task of the mediators was therefore rendered difficult in view of Carranza's disinclination to suspend hostilities. His participation was necessary in order to come within scope of the mediation as accepted by the United States. Moreover, the conclusions of the conference without representation therein by Carranza would be rendered nugatory by reason of his manifest domination of the situation in Mexico and of his impending triumphant march to Mexico City. It was precisely this extension of the scope of mediation to all Mexican troubles insisted upon by the United States, that rendered Carranza's participation in the proposed conference remote.

Carranza's Attitude Toward Mediation.—Carranza was firm in his determination not to suspend hostilities against Huerta, although he indicated his willingness to send delegates to discuss the international situation. The correspondence between the mediators and Carranza shows that the difficulty lay in the extension of the scope of mediation made after the invitation to Carranza. The first communication on April 29 invited him to participate in a "friendly and peaceful solution of the conflict between the United States and Mexico." On the same day Carranza accepted. The mediators then asked him to suspend hostilities against Huerta. Thereupon, May 3, Carranza reminded the mediators of their departure from the terms of their original offer, in the extension of mediation to the civil war which he was waging against Huerta, and he informed them "that the international conflict between the United States and Mexico is independent of our internal struggle for liberty and right." And he therefore deemed it "inconvenient for the Constitutionalist cause . . . to suspend hostilities and military operations because such suspension would only accrue to the benefit of Huerta."

The reply of the mediators indicated the embarrassing position to which they had been reduced by the insistence of the United States on extending the scope of mediation, so as to include the whole troubled field of Mexican politics. They pleaded that in inviting him originally they had had the domestic situation "in mind": "We deem that this unexpected statement is inconsistent with the view we

had in mind when we offered our good offices." And if Carranza would still adhere to his decision not to suspend hostilities, "we find ourselves in the necessity of withdrawing as inopportune our invitation."

Nevertheless, Carranza insisted that there was discrepancy between the original offer of the mediators and their proposed subsequent programme; he refused to be drawn into a conference to discuss internal problems, contending that they could be solved only by the Constitutionalist party, and that the conclusions of the proposed conference would not be binding on him or his party. He relied considerably on the military situation, hoping to confront the Mediation Conference with a *fait accompli* in the capture of Mexico City. In some quarters, indeed, the United States was charged with complacency in viewing the attitude of Carranza; it was stated that the .occupation of Vera Cruz had devitalized Huerta's resistance to the Constitutionalist army.

The Conference at Niagara Falls.—On May 20 the first formal session of the Mediation Conference was held, under the auspices of the plenipotentiaries of Argentina, Brazil and Chile. The United States was represented by Joseph R. Lamar, Associate Justice of the Supreme Court of the United States, and Frederick W. Lehmann, formerly the Solicitor-General of the United States. General Huerta was represented by Augustin Rodriguez, Emilio Rabasa and Luis Elguero. The programme of the Mediation Conference was as follows: the creation of a provisional government to succeed General Huerta, who would retire; the discussion and determination of the nature of such provisional government, whether it should be an individual or a commission; the discussion and determination of the internal problem, which would include agrarian, electoral and other constitutional reforms; provision for a general election, wherein the people of Mexico would elect a President and a Congress under constitutional forms; the evacuation of Vera Cruz; the determination whether or not the United States was entitled to satisfaction for the Tampico incident; the promulgation of a general amnesty; and provision for a claims commission to determine the matter of damages suffered by foreigners. This programme was in accord with the plan of permanent pacification urged by the President and comprised the matters on which he was firm—the elimination of Huerta, the inauguration of economic reforms, and the establishment of a constitutional régime in Mexico.

The Question of the Provisional Government.—The Conference considered the plan of creating a Commission which should succeed General Huerta as a provisional government, arrange for a general election, and prepare the way for economic reform. The difficulty of this plan became apparent when it came to the naming of the individuals who would compose the Commission. The question whether the majority of the Commission should be Huertistas or Carranzistas became so troublesome and showed so little possibility of agreement that the Conference took up the question of an individual with powers of a Provisional President. Here again the difficulty seemed insuperable. The Mexican delegates urged that a "neutral" be named; the American delegates insisted that only a Constitutionalist would be acceptable. On June 17, the Mexican delegates, departing from the procedure of the Conference, issued a statement to the press in which they urged their claims for a "neutral":

> A provisional government composed of revolutionaries and with revolutionists in authority throughout the country would turn the elections as it wished; the public vote would be falsified and the result would necessarily be the election of another revolutionary.

The American delegates replied the next day. They emphasized the military strength of the Constitutionalists and indicated that permanent peace

> can only be obtained by consulting the just wishes of the Constitutionalists, who are not only in numerical majority, but are now the dominant force in the country.

If a neutral should be chosen as Provisional President,

> we would have secured no practical results, but still be confronted with the insurmountable fact, that the Constitu-

tionalists, now almost completely triumphant, would reject the plan, repudiate the man and press forward with renewed zeal to Mexico City, with all the loss of blood and life that may involve.

Moreover, it would be a difficult matter to find a neutral in Mexico:

> The country might well question the patriotism of any Mexican who has been colorless in such a contest. . . . The effort, therefore, should be not to find a neutral but one whose attitude on the controlling issues would make him acceptable to the Constitutionalists while his character, standing and conduct would make him acceptable to the other party.

After a period of pessimism, during which the Conference was on the brink of failure, the mediators decided to pass this difficult question, and their efforts were directed to the drafting of a protocol so general in terms as to be acceptable to both sides. The mediators were also conscious of the fact that the leading political party in Mexico was unrepresented at their Conference; and their embarrassment was not relieved by the unexpected arrival at Niagara Falls of Señor Juan F. Urquidi with a note from General Carranza concerning his participation in the Conference. While the overtures seemed to come from Carranza voluntarily, the likelihood of a suspension of hostilities was as remote as ever because of his continued military successes. The mediators therefore maintained their previous attitude in refusing permission to Carranza to participate in the Conference unless military operations were suspended forthwith. On June 12, Carranza announced the names of his delegates but made no reference to an armistice and expressed no willingness to discuss internal questions.

The Mediators and the Mexican Factions.—The way out of the difficulty seemed to be (1) to restrict mediation for the time being to the settlement of the international question, namely, the "pending conflict between the United States and Mexico" (in the words of the original offer of the mediators), and (2) to hand over the discussion and settlement of the internal conflict to a conference of the delegates of General Huerta and of General Carranza and thereby give the mediators the opportunity to withdraw from an inquiry under their auspices into Mexican domestic troubles. This programme was adopted and on June 24 the mediators invited the representatives of Huerta and of Carranza to meet and

> to discuss and agree between themselves on a basis of an arrangement whereby the political pacification of the country could be consummated, with the termination of the Civil War and the organization of a provisional government to conduct the general elections for the establishment of the powers of a permanent government.

This arrangement gave the mediators their opportunity to close the Conference with the semblance of having arrived at a solution of the Mexican crisis both international and domestic. From the international standpoint the mediators' task was not difficult. The American delegates did not appear to press for international satisfaction "for affronts and indignities committed" against the United States, and the assurance appears to have been given that Vera Cruz would be evacuated. The military situation in Mexico appears also to have convinced the mediators that their task with reference to Mexican internal questions was at an end; for while Carranza's delegates were waiting for instructions his army was about to march into Mexico City. Huerta's downfall was a question of days, and with his elimination and Carranza's final triumph "the whole troubled field of Mexican politics" would no longer concern them.

On July 1, having decided upon adjournment, the mediators issued an identical note to the delegates of the United States and of Huerta, defining the status of their mediation and giving the reasons for recess:

> The undersigned believe that what remains to be done in the discharge of the task which it was their good fortune to initiate two months ago, does not at the present time require their presence at this place, and that the work—now a matter falling to the Mexican delegations—may be resumed without any inconvenience whatsoever whenever the arrival of the representatives of the Constitutionalist party is announced.

The Protocol.—The mediators were now in a position to issue a protocol, couched in general terms, which would express the results of their labors. It was signed on June 24 by the mediators, by the American delegates and by the representatives of General Huerta. It read as follows:

ARTICLE I.—The provisional government referred to in protocol No. 3 shall be constituted by agreement of the delegates representing the parties between which the internal struggle in Mexico is taking place.

ARTICLE II.—(*a.*) Upon the constitution of the provisional government in the City of Mexico, the Government of the United States of America will recognize it immediately, and thereupon diplomatic relations between the two countries will be restored.

(*b.*) The Government of the United States also will not in any form whatsoever claim a war indemnity or other international satisfaction.

(*c.*) The provisional government will proclaim an absolute amnesty to all foreigners for any and all political offenses committed during the period of Civil War in Mexico.

(*d.*) The provisional government will negotiate for the constitution of international commissions for the settlement of the claims of foreigners on account of damages sustained during the period of Civil War as a consequence of military acts or the acts of the national authorities.

ARTICLE III.—The three mediating Governments agree on their part to recognize the provisional government organized as provided in section I of this protocol.

With the departure of the mediators on July 2 the formal sessions of the Mediation Conference were concluded. The protocol was of no practical effect and the plan was not made operative in any particular. Huerta, however, voluntarily resigned on July 15. The subsequent course of events in Mexico is described on another page (see IV, *Latin America*).

Results of the Mediation Conference.—The results of the A. B. C. mediation must not be judged from the practical standpoint alone. It would appear that the immediate results were barren of accomplishment; that the United States emerged from the Conference without international satisfaction for the affronts and indignities suffered by it; and that the whole troubled field of Mexican affairs was still untouched. But there were other considerations not quite so tangible but equally important. A war with Mexico was averted and mediation gave the opportunity for calm reflection and the cooling of national passion. Equally important was the effect of mediation on the relations of the United States with the countries of Latin America. The offer of mediation came at a time when suspicion in Latin America of the designs of the United States was deepest. The affair of Panama, the intervention in Cuba, the annexation of Porto Rico, and the attempted fiscal protectorates in Central America, produced a growing suspicion in the countries of Latin America that the United States was bent on territorial aggression at their expense. The seizure of a great Central American port, Vera Cruz, served to substantiate the suspicion. The readiness with which the United States accepted the tender of mediation by the South American republics did more to allay this suspicion than any number of Pan-American Conferences and tours of Secretaries of State. The Mediation Conference had some of the aspects of a Hague Tribunal; and in its broader phases, it was as beneficial. It may serve as the starting point for the general recognition that the Americas have interests peculiarly their own and that the New World has awakened to the consciousness that in some aspects it is a political unit. The statement may also be ventured that the "Concert of America" has been inaugurated, its first action serving to allay the growing feeling of danger of aggression from within the hemisphere itself.

COLOMBIA

The year 1914 marks the successful conclusion of a treaty with Colombia, after negotiations stretching over a period of ten years. Relations between the United States and Colombia became strained immediately after the secession of Panama, because of the feeling in Colombia that the Government of the United States was responsible. The negotiations of Mr. Du Bois (*A. Y. B.*, 1913, p. 89) were doomed to failure as were previous

negotiations. New negotiations, however, were opened by Thaddeus Thompson, the new American Minister at Bogota, and on April 6 were incorporated in a treaty with Colombia, which was signed on April 7.

The text of the treaty follows:

The United States of America and the Republic of Colombia being desirous to remove all the misunderstandings growing out of the political events in Panama in November, 1903; to restore the cordial friendship that formerly characterized the relations between the two countries and also to define and regulate their rights and interests in respect of the inter-oceanic Canal which the Government of the United States is constructing across the Isthmus of Panama, have resolved for this purpose to conclude a Treaty and have accordingly appointed as their Plenipotentiaries [here follows a list of names]. Who, after communicating to each other their respective full powers, which were found to be in due and proper form, have agreed upon the following:

Article I

The Government of the United States of America wishing to put at rest all controversies and differences with the Republic of Colombia arising out of the events from which the present situation on the Isthmus of Panama resulted, expresses in its own name and in the name of the people of the United States, sincere regret that anything should have occurred to interrupt or to mar the relations of cordial friendship that had so long subsisted between the two nations. The Government of the Republic of Colombia, in its own name and in the name of the Colombian people, accepts this declaration in the full assurance that every obstacle to the restoration of complete harmony between the two countries will thus disappear.

Article II

The Republic of Colombia shall enjoy the following rights in respect to the interoceanic Canal and the Panama Railway:

1. The Republic of Colombia shall be at liberty at all times to transport through the interoceanic Canal its troops, materials of war, and ships of war, even in case of war between Colombia and another country, without paying any charges to the United States.

2. The products of the soil and industry of Colombia passing through the Canal as well as the Colombian mails, shall be exempt from any charge or duty other than those to which the products and mails of the United States may be subject. The products of the soil and industry of Colombia, such as cattle, salt, and provisions, shall be admitted to entry in the Canal Zone, and likewise in the islands and mainland occupied or which may be occupied by the United States as auxiliary and accessory thereto, without paying other duties or charges than those payable by similar products of the United States.

3. Colombian citizens crossing the Canal Zone shall, upon production of proper proof of their nationality, be exempt from every toll, tax, or duty to which citizens of the United States are not subject.

4. During the construction of the interoceanic Canal and afterwards, whenever traffic by the Canal is interrupted or whenever it shall be necessary for any other reason to use the railway, the troops, materials of war, products, and mails of the Republic of Colombia as above mentioned shall, even in case of war between Colombia and another country, be transported on the railway between Ancon and Cristobal or on any other railway substituted therefor, paying only the same charges and duties as are imposed upon the troops, materials of war, products, and mails of the United States. The officers, agents, and employees of the Government of Colombia shall, upon production of proper proof of their official character or their employment, also be entitled to passage on the said railway on the same terms as officers, agents, and employees of the Government of the United States. The provisions of this paragraph shall not, however, apply in case of war between Colombia and Panama.

5. Coal, petroleum, and sea salt, being the products of Colombia, passing from the Atlantic coast of Colombia to any Colombian port on the Pacific coast, and vice versa, shall be transported over the aforesaid Railway free of any charge except the actual cost of handling and transportation, which shall not in any case exceed one-half of the ordinary freight charges levied upon similar products of the United States passing over the Railway and in transit from one port to another of the United States.

Article III

The United States of America agree to pay to the Republic of Colombia, within six months after the exchange of the ratification of the present Treaty, the sum of twenty-five million dollars, gold, United States money.

Article IV

The Republic of Colombia recognizes Panama as an independent nation, and taking as a basis the Colombian law of

June 9, 1855, agrees that the boundary shall be the following: from Cape Tiburon to the headwaters of the Rio de la Miel and following the mountain chain by the ridge of Gandi to the Sierra de Chugargun, and that of Mali going down by the ridges of Nigue to the height of Aspave and from thence to a point on the Pacific, halfway between Cocalito and La Ardita.

In consideration of this recognition, the Government of the United States will immediately after the exchange of the ratifications of the present treaty take the necessary steps in order to obtain from the Government of Panama the despatch of a duly accredited agent to negotiate and conclude with the Government of Colombia a Treaty of Peace and Friendship, with a view to bring about the establishment of regular diplomatic relations between Colombia and Panama and the adjustment of all questions of pecuniary liability as between the two countries, in accordance with recognized principles of law and precedents.

Article V

The present treaty shall be approved and ratified by the High Contracting Parties in conformity to their respective laws, and the ratification thereof shall be exchanged in the city of Bogota as soon as may be possible.

The first article was much criticized in a section of the press. It was pointed out that the expression of "sincere regret" was tantamount to an apology. The discussion that followed soon developed the interesting fact that in the note presented by Mr. Du Bois to Señor Urrutia on Feb. 15, 1913, in an effort to settle the Colombian controversy for the Taft administration, the words "deeply regrets" were used. The Du Bois negotiations further spoke of the "ill feeling aroused in Colombia by the separation of Panama." It is clear that in each case the Government of Colombia insisted on some expression of regret as balm to its wounded *amour propre* and that in each instance it was given.

The treaty contains no grant of an interoceanic canal *via* the Atrato (*A. Y. B.*, 1913, p. 89). The omission emphasizes the intention of the Government of Colombia to confine the present treaty to expressions of regret on the part of the United States and to compensation for loss of territory and prestige. The grant of rights of the Atrato route appears to be reserved by Colombia for separate negotiation and for a distinct *quid pro quo*. The treaty, however, establishes a clear title to the Panaman independence, and Colombia recognizes the separation as a *fait accompli*. The treaty has the redeeming virtue of securing finality to the deplorable relations that have existed between the United States and Colombia for years. It still lacks, however, the ratification of the United States Senate.

PANAMA CANAL TOLLS

The various phases of the Panama Canal Tolls controversy were stated in detail in the YEAR BOOK for 1913 (p. 84). Great Britain rested her case on Sir Edward Grey's note and Ambassador Bryce's "observations," and the differences between the two Governments remained in abeyance during President Wilson's administration without further correspondence.

Acting on his own initiative, the President appeared before Congress on March 5, and urged the repeal of the clause of the Panama Canal Act whose exemption of American vessels brought about the controversy. Although he had decided views on the meaning of the Hay-Pauncefote Treaty, construing the exemption of American coastwise shipping to be in "plain contravention of the treaty," and although he doubted the economic wisdom of the policy of exemption, his ultimate appeal to Congress was based on different grounds. He stated that he felt himself hampered in his dealings with international situations, and that his foreign policies suffered by reason of the American interpretation of the treaty. The President's attitude and the action of Congress are discussed on another page (see I, *American History*).

Congress passed the repealing act urged by the President, but inserted a proviso which expressly reserved the right of the United States to exempt American vessels in the future. The real merits of the controversy, therefore, remained untouched. The controversy was not ended, it was postponed; for the right of any subsequent Congress to reënact legislation exempting American vessels from the

payment of traffic charges was expressly affirmed. The victory of the President was considerably dimmed, for Congress based its action not on principle but on expediency.

In Great Britain, the feeling was one of gratification mingled with regret. Great Britain was sensible of the agitation waged against the British interpretation in the American press and in Congress and of the impression sought to be created that the British Government was a seeker for material advantages and for "sundry places along the routes of international trade." It was this phase of the public discussion in the United States that impelled the British press to qualify their expressions of satisfaction. The President's action, however, was praised in all parts of Great Britain, and it was interpreted as a manifestation of friendship on his part animated "by a desire to be meticulously exact in treaty obligation."

It is an interesting fact that all the correspondence on the controversy was passed entirely before President Wilson came into the office. This fact is noteworthy in connection with the impression sought to be created that the President's action was due to a "bargain" or to pressure of British diplomacy, particularly in the Mexican situation. Sir Edward Grey, the British Foreign Secretary, on June 26, in a speech before the House of Commons, said:

> I have seen it stated in some quarters that the settlement which has now been arranged over the Panama tolls was the result of some bargain between the present Government of the United States and his Majesty's Government, or that it was the result of some diplomatic pressure on our part, or in other words that it was the result of *finesse* or cleverness on our part either in the matter of bargain or in diplomacy. I should like to say just what the facts are. The House knows from the papers published the attitude we took upon this subject originally, and the correspondence which passed in the early stages between ourselves and the Government of the United States. That correspondence passed entirely before President Wilson came into office. Since he came into office, I believe no correspondence whatever has passed and it ought to be recognized that the line he has taken in the United States on this subject was not taken because it was our view of foreign policy, but because it was his own view. The really great and satisfactory feature of the action taken by the President of the United States is that he has not been moved to please us specially, nor specially even in the interest of good relations between the United States and Great Britain; although I believe that is as dear to his feelings as it is to ours. I believe he has been influenced by the much greater feeling that any Government which desires to use its influence to making relations between the great countries civilized and peaceful, must never, when the occasion arises, flinch or quail, from interpreting treaty rights—with whatever country they may have been entered into—in a strictly fair spirit.

This fairly represents the British attitude with reference to the repeal of the offending clause of the Panama Canal Act; while gratification is freely expressed, it was felt that the British interpretation of the treaty is far from being vindicated.

OTHER RELATIONS

The Dominican Republic.—The unstable condition in the Dominican Republic continued for the greater part of the year (see IV, *Latin America*). The situation assumed such seriousness that in August President Wilson was impelled to send a commission to Santo Domingo with plans and instructions to bring about a condition of peace throughout the republic. The commission was composed of ex-Governor Fort, of New Jersey, James M. Sullivan, United States Minister at Santo Domingo, and Charles C. Smith of New Hampshire.

The commissioners, as special representatives of President Wilson, were charged with a plan of pacification which contemplated the following objects: the declaration of an armistice, the retirement of President Bordas, and the arrangement and supervision of a general election for his successor. The commissioners acted, not as accredited representatives of the United States, but as bearers of a message from President Wilson, whose instructions they were charged to carry out. An armistice was agreed upon by all factions; President Bordas was induced to retire, and Dr.

Ramon Baez was accepted as Provisional President, with the understanding that he would not be a candidate in the forthcoming election.

The election arranged by the commission was held on Oct. 25-27 under the eyes of American observers, who were mainly officers and marines of American warships in the Dominican harbors. It resulted in the choice of Juan I. Jimenes as President, and on Dec. 4 he was proclaimed. The inauguration of President Jimenes gives the republic its first regularly elected President since the assassination of General Caceres in 1911. (See also IV, *Latin America.*)

Nicaragua.—After months of deliberation, the Senate Committee on Foreign Relations decided on Dec. 16 to report favorably to the Senate the treaty with Nicaragua (*A. Y. B.*, 1913, p. 91). The United States agrees to pay the sum of three million dollars for the right to construct an interoceanic canal route and for naval bases on the Bay of Fonseca. The treaty as reported includes an amendment prescribing that the Government of Nicaragua shall use a part of the three million dollars for the adjudication of claims and payment of certain debts.

Japan.—The difference with the Japanese Government which arose out of the California anti-alien land law of 1913 (*A. Y. B.*, 1913, pp. 16, 86) remains unsettled. It appears that after an exchange of opinions the two Governments sought their way out of the difficulty by negotiating a new treaty. The Japanese Minister for Foreign Affairs in addressing the Japanese Diet in January said that the replies of the United States were unsatisfactory, and that it seemed necessary "to consider some other ways for a solution of the question." It was apparent that little progress was made in the negotiations of a new treaty. Moreover, a change in ministry at Tokio brought about an apparent change of attitude on the part of the Japanese Government. In June the Japanese ambassador at Washington, Baron Chinda, communicated the opinion of his Government to the Department of State that further negotiations along treaty lines appeared fraught with new difficulties and suggested that the Governments revert to the old method of exchanging notes on the subject under discussion, hoping that in thus reviewing the study of the case a solution might be found. The Japanese Government also requested that the previous correspondence be made public, which the United States accordingly did. As intimated in the last issue of the YEAR BOOK (p. 87), the solution which the Japanese Government would suggest is that of citizenship for Japanese subjects. The controversy raises the difficult question of naturalization, and the discussion involves the problem whether citizenship is a political question to be determined by the Government conferring it or an international question admitting of international discussion and adjustment.

Russia.—The United States is still without a treaty of commerce with Russia, a state of affairs produced by the abrogation by President Taft of the treaty of 1832 as a result of the passport difficulty (*A. Y. B.*, 1911, pp. 67, 98; 1912, p. 89). In November the Russian Foreign Minister, M. Sazonof, allowed himself to be quoted on the subject to this effect:

> As an evidence of our good faith, we are already allowing America the common privilege enjoyed by those countries whose treaties with us contain the most-favored-nation clause. . . . We are, therefore, awaiting with great interest the proposals of the United States. Until these are made our attitude cannot be more than one of friendly receptivity. Meanwhile, however, there is no reason why American exports to Russia should not be increased without waiting for the treaty to crystallize. It will come eventually, we hope, but it is not now essential as a basis for increased trade. Without the formal signing of a treaty we are willing to offer every reasonable inducement and encouragement to American merchants.

While this statement may not be interpreted in the light of an overture on the part of Russia, it indicates a willingness to enter into a discussion of the matter. It also is in accord with the many recent manifestations on the part of the countries at war to cultivate the good will and friendship of the United States.

Turkey and the Capitulations.—On Sept. 9, the Porte announced the abrogation as from Oct. 1 of the conventions known as the Turkish Capitulations. The Porte added that in doing so it was inspired by no unfriendly intentions, its object being to attain judicial, economic and fiscal liberty of action. It further announced its willingness to conclude treaties of commerce based on principles of international law. On Sept. 10, the Turkish Ambassador at Washington stated that all privileges and immunities accessory to these conventions or issuing therefrom were repealed. The effect of the abrogation in Turkey will be far reaching, especially on its customs, on which there were restrictions imposed by the other powers. The capitulations have existed for centuries and, among other things, conferred upon citizens of other countries the right of extraterritoriality. Their abrogation was met by united opposition. The United States filed its protest through its Ambassador at Constantinople, Mr. Morgenthau, who was instructed to inform the Porte that the Government of the United States does not acquiesce in the setting aside of the capitulations; that the United States does not recognize the right of the Ottoman Government to abrogate the capitulations; and that the Turkish action, being unilateral, can have no effect upon the rights enjoyed under the capitulatory conventions.

THE EUROPEAN WAR

Results of the Balkan Wars.—The immediate origin of the present war in Europe may be traced to the situation in the Balkans, and it may be said to be the aftermath of the Balkan wars of 1912 and 1913 (*A. Y. B.*, 1912, pp. 89-93, 142-144; 1913, 94-106, 146-149). The significant result of these wars was that it brought into direct opposition Russia and Austria-Hungary, who had been striving for years for mastery in the Peninsula. Previously, these powers had been moving against each other indirectly, through the intermediation of various countries composing the Balkan group. The Balkan wars, however, cleared the board of pawns and minor pieces, and left the prime movers to confront each other. The foreign policies of these powers were always at cross purposes in the Near East. The trend of Austria-Hungary eastward to the Ægean, across Bosnia and Herzegovina and through Servia, was the patient task of Austro-Hungarian diplomacy; equally consistent was the traditional policy of Russia to secure control of the Dardanelles, and assure herself of a warm-water port throughout the year. The first point of contact within recent years was in Turkey. The collapse of the Turkish Empire in Europe, as a result of the Balkan League, a creation of Russian diplomacy, scored a point in favor of Russia. The second Balkan War, wherein the Balkan Allies waged war against each other, was the countermove of Austria-Hungary; for a time it broke the Slavic solidarity, and established a "sphere of interest" in Bulgaria as opposed to Russia. When peace was finally assured, two facts stood out prominently and bore peculiar significance to the great rivals for supremacy, first, the elimination of Turkey as a factor in the Balkans, and second, the occupation of the Sanjak of Novibazar by Servia and Montenegro. The existence of Turkey in Europe was a factor essential to the success of Austro-Hungarian expansion eastward. A strong Turkish Government would serve as a countercheck to the national aspirations of the other Balkan countries, particularly in diverting their activities to the problem of Moslem rule in the Peninsula. The elimination of Turkey not only removed this counterbalancing factor but served as a stimulus to the Balkan countries for national growth. It did more, it directed the attention of the Balkan countries to the possible encroachment of Austria-Hungary. A second Balkan League encouraged by Russian diplomacy henceforth could only have one objective, the blocking of Austro-Hungarian progress to the Ægean.

Of equal significance was the occupation of the Sanjak of Novibazar by Servia and Montenegro. In the hands of Turkey, the Sanjak served as a wedge, cleaving apart the Serbs in

Servia from those in Montenegro, preventing concerted action of these kindred peoples and stunting their national growth. The Sanjak was, therefore, Austria-Hungary's gateway to the East. The effect of its occupation by Servians and Montenegrins was not only to unite these Slavic peoples, but to slam the gate directly in the face of the Dual Monarchy.

After the Balkan wars, Austria-Hungary was conscious of a growing Servia on its flank, which, it appeared, had almost doubled in territory and population and made bold to encroach on Austro-Hungarian integrity by reclaiming under Servian administration the thousands upon thousands of Slavs that dwelt across its border in the Austro-Hungarian provinces of Bosnia and Herzegovina. In the light of these circumstances, it will be seen that the Treaty of Bucharest (*A. Y. B.*, 1913, p. 101), concluded at the close of the second Balkan War, was far from being an effective peace, and was in fact an armed truce.

The Position of Servia.—It became evident that Servia was the next point of contact between Russia and Austria-Hungary, and as events subsequently proved, the very theater of their direct clash. Always in a position to bring about a crisis in Austro-Hungarian domestic affairs, Servia, by reason of its growth and prestige as a result of the second Balkan War, became an immediate source of danger. In Vienna, it was felt that the danger did not end there. The growth of the irredentist movement in Servia looking to the reclamation of the Serbs in the provinces of Bosnia and Herzegovina, was fraught with grave peril to Austria-Hungary. Itself a monarchy composed of diverse peoples and races, it was peculiarly susceptible to appeals to race consciousness and religious differences, in that they would liberate the centrifugal forces which ultimately would loosen the bonds of the Monarchy. Pan-Servian propaganda at Belgrade was, therefore, most dangerous to Austro-Hungarian integrity, and in fact brought about an acute crisis in the provinces of Bosnia and Herzegovina, where more than a million Slavs were separated by a geographical line from "mother Servia." The Austro-Hungarian Government was soon confronted with growing unrest and disaffection in its southern Slavic provinces, due in great measure to its own harsh treatment of the peoples who dwelt there, but, in Vienna, attributed to the racial and religious propaganda for a Greater Servia. Relations between Austria-Hungary and Servia were further aggravated by Servia's landlocked position, to which Austria had relegated Servia by her refusal to allow Servia to annex an Albanian seaport, captured by the Servian army in the first Balkan War.

The situation was rendered acute by the consciousness in Vienna that essentially Servia was a Russian outpost athwart Austro-Hungarian progress to the Ægean, and that in the supreme crisis, Servia would be a Russian base for operations against Austria-Hungary. Austro-Servian relations, therefore, soon became strained to the breaking point because of the realization in Austria-Hungary that Servia was not acting for herself but for Russia, in whose orbit she moved; and that Servian propaganda was a part of Russian foreign policy. Vienna was convinced that eventually Servia would play the rôle of *agent provocateur*.

The Assassination of the Archduke Franz Ferdinand. — The inevitable crisis came. The occasion was the assassination of Archduke Franz Ferdinand, the heir-apparent to the Austro-Hungarian throne, and of his consort, the Duchess of Hohenberg, in Sarajevo, the capital of Bosnia, on June 28 (see IV, *Foreign Affairs*). The crime was committed by a youth of eighteen years, a Serb by race, but a native of Herzegovina, who had lately removed from Belgrade imbued with racial fanaticism. In Vienna it was charged that the crime was the culmination of the propaganda encouraged by Belgrade, whose object was:

> to revolutionize gradually and finally to bring about a separation of the southwestern region of the Austro-Hungarian Monarchy from that empire and unite it with Servia.

The situation was aggravated by the bitter campaign waged in the Austro-Hungarian press for punitive action against Servia. The *Fremdenblatt* said:

Conditions that we cannot allow to continue have made themselves apparent on the threshold of our house as a result of the encroachment of the Pan-Servian idea. Servia has covered herself with a network of societies which, with the pretext of fostering culture, preached the doctrine of hatred of us throughout the country.

The campaign in the press was not confined to the Austro-Hungarian papers. The Belgrade press was equally provocative and indiscreet. The *Pravala*, speaking of the mourning in Austria-Hungary, said:

The only genuine tears shed for the heir-apparent were those of his children. All others were crocodile tears.

An investigation of the crime at Sarajevo satisfied the Austro-Hungarian Government that the plot to assassinate the Archduke was planned and promoted in Belgrade with the coöperation of official Servian individuals and was carried out with weapons furnished by the Servian Government. Convinced that the further propaganda would threaten the integrity of the Empire and that the situation warranted drastic measures, the Austro-Hungarian Government deliberated on the matter for weeks before disclosing its programme. None knew better than the Austro-Hungarian statesmen that the situation in the southern Slavic provinces was not unlike that which confronted their country in 1859 in the Italian provinces and in Piedmont. The present situation was rendered more dangerous by reason of the feeling in Austria-Hungary that Russia stood behind Servia, lending no little aid and comfort to the Servian Government in the crisis. The Slav peril in the minds of the Austro-Hungarian diplomats had reached its most dangerous form, and it decided upon a *démarche* which would not only end the Pan-Servian propaganda for all time, but would serve as a challenge to Russia as well. It was also felt in Vienna that in view of the domestic troubles in the countries of the Triple Entente, the impending conflict with Servia could be isolated.

The Ultimatum.—The decisive step was taken on July 23. An ultimatum was sent to the Servian Government, giving it 48 hours in which to reply and indicate its willingness to comply with the demands. The note recited the Servian declaration of March 31, 1909, after the annexation by Austria-Hungary of Bosnia and Herzegovina, wherein Servia undertook "to live in the future on good and neighborly terms" with Austria-Hungary. Then followed the charge that the Servian Government

has permitted the criminal machinations of various societies and associations directed against the Monarchy, and has tolerated unrestrained language on the part of the press, the glorification of the perpetrators of outrages, and the participation of officers and functionaries in subversive agitation.

The further charge was made that

the Sarajevo assassinations were planned in Belgrade, that the arms and explosives with which the murderers were provided had been given to them by Servian officers and functionaries belonging to the Narodna Odbrana, and finally, that the passage into Bosnia of the criminals and their arms was organized and effected by the chiefs of the Servian frontier service.

The note demanded that the Servian Government should publish on the front page of its *Official Journal* of July 26, a verbatim statement, carefully prepared in Vienna, to the effect that the Servian Government "condemns the propaganda directed against Austria-Hungary, i. e., the general tendency of which the final aim is to detach from the Austro-Hungarian Monarchy territories belonging to it"; and "repudiates all idea of interfering or attempting to interfere with the destinies of the inhabitants of any part whatsoever of Austria-Hungary;" and further that a declaration to this effect should be communicated to the Servian Army as an order of the day, and published in the *Official Bulletin* of the Army. The Servian Government was also required to dissolve the society styled the Narodna Odbrana (National Defense) and all other societies which engage in propaganda against the Austro-Hungarian Monarchy; to remove from the military service and from the administration in general "all officers and functionaries guilty of propaganda against the Austro-Hungarian

Monarchy," whose names and deeds were to be communicated by Austria-Hungary; to accept the collaboration in Servia of representatives of the Austro-Hungarian Government in the suppression of the "subversive movement directed against the territorial integrity of the Monarchy." The demand which was particularly offensive to the Servian Government and made the ultimatum unacceptable in this respect was as follows:

> To take judicial proceedings against accessories to the plot of the twenty-eighth of June who are on Servian territory. Delegates of the Austro-Hungarian Government will take part in the investigation relating thereto.

The arrest of certain individuals was further demanded. An annex was attached to this note giving the results of the investigation in Austria-Hungary. A circular note accompanying this ultimatum was sent to the various capitals of Europe, reciting in detail the Servian propaganda and justifying the drastic step taken by the Austro-Hungarian Government.

Russia's Interest in Servia.—The interest of Russia in Servia is at once religious and political. The entry of Russia in Servian affairs was through the medium of religion. Russian rubles constructed most of the Serb-Orthodox churches in Old Servia, Bosnia and Herzegovina. By patient application Russian diplomacy gradually aroused in Servia a consciousness of kind in affairs religious. Politically, also, Servia was of utmost importance to Russia's policy in the Balkans. A strong and growing Servia would be the most effective check to Austria-Hungary's aspirations in the Balkans. It would be more, it would serve as the disintegrating force which Russia hoped would loosen the bonds of that conglomeration of races and peoples known as Austria-Hungary. In the nature of things, Servia was the immediate point of contact between the great rivals; and both were committed to definite policies with reference to this intervening state, the one, toward strengthening its Government and encouraging its national aspirations, the other, toward weakening its condition and reducing it to vassalage.

M. Sazonof, the Russian Foreign Minister, was reported to have stated Russia's interest as follows:

> It was clear that Austrian domination of Servia was as intolerable for Russia as the dependence of the Netherlands on Germany would be to Great Britain. It was in fact for Russia a question of life and death. (British Blue Book No. 139.)

The humiliation of Servia, therefore, meant a loss of Russian prestige in the Balkans with the consequent rise of Austria-Hungary's influence and power. The Russian Government was outspoken in the matter. On July 24 it issued an official *communiqué* to the effect that it could not be indifferent in the event of an Austro-Servian conflict. On the same day, after a council of Ministers at St. Petersburg, one of the participants made this statement:

> Ministers are unanimously agreed that Austria-Hungary has thrown down a challenge to Russia and that, in M. Sazonof's words, there can be only one answer. (London *Times*, July 25.)

At the close of the Grand Council convoked to consider the crisis, the Czar is quoted as having said:

> We have stood this sort of thing for seven and a half years. This is enough. (*Ibid.*)

On July 25, the day of the expiration of the ultimatum, the Russian Government appeared to have come to its decision, for Sir G. Buchanan, the British Ambassador at St. Petersburg, reported to Sir E. Grey:

> His Excellency (M. Sazonof) replied that Russia could not allow Austria to crush Servia and become the predominant Power in the Balkans, and, if she feels secure of the support of France, she will face all the risks of war. (British Blue Book No. 17.)

The reply of Servia accordingly was foreshadowed in St. Petersburg, where it was undoubtedly inspired. On July 24, the day of the arrival of the text of the Austrian ultimatum, the Russian Foreign Minister informed Sir G. Buchanan that "some of her (Austria-Hungary's) demands were quite impossible of acceptance" (British Blue Book, No. 6). As to how

far Servia would go toward meeting the Austrian demands, the Russian Foreign Minister replied that he "must first consult colleagues on this point, but that doubtless some of the Austrian demands could be accepted by Servia" (*ibid.*). The reliance of Servia on Russia in her crisis was complete. St. Petersburg determined whether or not Servia should accept, and the extent of the acceptance.

Servia's Reply.—Aside from Russian considerations, it was felt in Belgrade that full compliance with the Austro-Hungarian demands was out of the question. Some of them, it was stated, impaired the rights of Servian sovereignty, particularly those which required Austro-Hungarian participation in judicial proceedings on Servian soil. Moreover, no dynasty would survive the national humiliation in yielding completely to Austria-Hungary. On July 25 the Servian reply was delivered to the Austro-Hungarian Minister at Belgrade; in it Servia agreed to most of the demands, but declined to allow the coöperation of Austro-Hungarian officials on Servian territory. The reply concluded:

> In case the Austro-Hungarian Government should not consider itself satisfied with this answer, it is ready as always to accept a peaceful solution, either by referring the decision of this question to the international tribunal at The Hague or by leaving it to great powers who cooperated in the preparation of the explanation given by the Servian Government on the 18-31 March, 1909.

Shortly after the delivery of the Servian note, the Austro-Hungarian minister informed the Servian Government of its insufficiency and departed with his staff from Belgrade.

Austria-Hungary Decides upon War.—It may be seriously doubted whether the Austro-Hungarian Government expected full compliance as demanded, or was disappointed because Servia did not make complete surrender. It was particularly bitter against Servia, because the latter, as was charged, instituted no inquiry on its own accord nor in any way indicated a willingness to investigate to what extent Servian officials were responsible for the crime of Sarajevo. The *Norddeutsche Allgemeine Zeitung* of July 25 set forth an analysis of the Servian reply, paragraph by paragraph, together with the comments of the Austro-Hungarian Government, in which the reply is characterized as "insincere," "evasive," and "unsatisfactory" (German White Paper). The semi-official *Fremdenblatt* of July 26 said: "There can be neither mediation nor arbitration." In Vienna, in a semi-official *communiqué* on July 27, it was said that the Servian note was "insignificant" and filled with the "spirit of dishonesty" and that the Servian Government was not "seriously determined to put an end to the culpable tolerance it has hitherto extended to the threats against the Monarchy." On July 28 war was declared.

The Triple Alliance and the Triple Entente.—The situation in Europe was such that by reason of treaty obligations and of community of interests, no two powers could wage a war without involving the other Great Powers. The state of affairs was substantially that there would be either a general peace or a general war; no alternative appeared possible. The situation was the fruit of European diplomacy in dividing Europe into two armed camps, the culmination of the policy of armaments to which the Great Powers were committed. Europe was under the "dead hand" of intrigue, mistrust, military "programmes," and racial and religious propaganda, which grouped the Powers into two hostile triplices. It was this division into two armed groups so often referred to by European diplomacy as necessary to preserve "the balance of power" that really proved the dread engine of war that set Europe in flames. Even before the outbreak of the war, the situation was in fact one of economic warfare, in which the two groups were fast approaching the alternative of economic ruin on the one hand or the hazard of a general war on the other. The conflict appeared inevitable. It required the conjunction of two factors: the recognition that the burdens of an armed peace were too great to carry and the realization that the passing of time was wreaking changes in the military situation of Europe in the favor of the respective opponents. In the year of grace 1914, these factors conjoined.

The pendulum of advantage had in recent times swung to the side of the Triple Entente. A Slavic barrier closed the path of Teutonic progress to the Ægean; Morocco became a French province and France launched forth as a great Mediterranean power; Turkey was eliminated from Europe, leaving the way open for Russian progress to the Dardanelles; Russia and Great Britain had partitioned Persia, which gave to Russia the opportunity for propaganda against Turkey in Asia, and to Great Britain the means to check the German Bagdad Railway at its terminus on the Persian Gulf; and most significant of all, Italy was aloof and apparently under obligations to Great Britain for isolating her Tripolitan war. Gradually, Germany and Austria-Hungary were being hemmed in by their enemies, who seemed to be a unit against their expansion. Austria-Hungary was in fear of disintegration and Germany faced the startling possibility of complete isolation. Their fears were brought home to them by the Archducal assassination. In Berlin and in Vienna the crime was interpreted as a Servian torpedo launched by the protégé of Russia against the body politic of Austria-Hungary and the solidarity of their Alliance.

Germany's Position.—As Russia had national interests in Servia, so Germany had vital interests in the integrity of the Austro-Hungarian Empire. Austria-Hungary was at once a source of strength and of weakness to Germany; the weakness lay in the great diversity of races and peoples that dwelt in the Dual Monarchy, and particularly in the millions of Slavs who might be induced to grow restive under Teuton rule. Germany was, therefore, in great danger if Pan-Slavism made further inroads in Austria-Hungary. A well-organized Pan-Slavic propaganda would result in the gradual drifting away of Austria-Hungary from Germany toward Russia. The alliance between Germany and Austria-Hungary was economic as well as political. Together they had developed plans for expansion in the Near East. Before the collapse of Turkey, they had so far succeeded that German interests were dominant in the Marmora, in the Ægean and in the Euphrates Valley. German interests were supreme from Constantinople to the Persian Gulf. The Bagdad Railway was Germany's great factor for further penetration in Asia Minor. With its terminus at the Persian Gulf, Germany had an unrivaled route to the East, superior in some respects to the Siberian Railway of Russia and to the Suez Canal route of Great Britain. The route from Constantinople to the Persian Gulf being successfully acquired, there remained but the connecting of the intervening link from Vienna to the Bosphorus.

The elimination of Turkey as a factor in Europe wrought a great change in the German-Austro-Hungarian plans. The bridge to Asia Minor was now closed by the Slavic confederation in the Balkans, and the integrity of Austria-Hungary was threatened by the growth of Pan-Servian propaganda. These considerations account for Germany's unflinching support of Austria-Hungary in the latter's controversy with Russia. The danger to Germany was not in the southeast only; it also came from the northeast. Germany looked with apprehensive eyes at the growth of Russia and the reorganization of the Russian army. Her military authorities feared that within a few years the Russian military programme would become too formidable to meet with counter precautions.

German statesmen were also confronted with the economic problem of the country. Its small coast line, its poor access to the sea, its growing population, its geographical situation in mid-Europe encircled by hostile neighbors, its realization that it was fast outgrowing its boundaries and that it was rapidly approaching the limit of its internal resources, its aspirations for colonial expansion and an opportunity to venture upon a career as a maritime nation, its impatience at being huddled up "like a petty tradesman in a narrow shop," and its realization that the economic stress would become unbearable if the race in armaments with France, Russia, and Great Britain were continued, all cried for relief and for an outlet towards a place somewhere "in the sun."

From the German viewpoint, the situation seemed as follows: "Before long Germany will resemble an overheated boiler which is ready to burst unless a valve is open to relieve the pressure." All efforts of German expansion met with united opposition of Russia, France and Great Britain. The feeling in Germany grew particularly bitter in view of recent acquisitions of other powers. France acquired Morocco; Italy was allowed to conquer Tripoli; Great Britain and Russia partitioned Persia; Greece, a nation with an unrivaled seacoast, annexed the ports Salonika and Kavala; Japan annexed Korea and had a "sphere of influence" in Manchuria; and Great Britain and Russia were engaged by parallel action in dismembering China, the former by creating an autonomous Mongolia, the other in its attempt at setting up an autonomous Tibet. The tragic note in Germany's modern history is that she awakened to consciousness as a nation and developed as a power long after the other powers had grown to maturity. To be met by the united opposition of those very powers who themselves had undergone the same evolution that Germany was now undergoing and to be told to respect the *status quo* served to increase Germany's determination.

Germany's haunting fear was to be penned in by her united enemies, and to be isolated by the dismembering or the drifting away of Austria-Hungary:

> If Servia, with the help of Russia and France, had been allowed to imperil the existence of the neighboring Monarchy any longer, this would lead to the gradual downfall of Austria and would result in submission to Slavonic sway under the Russian scepter, thus making the position of the Germanic race in Central Europe untenable. A morally weakened Austria breaking down as the result of the advance of Russian Pan-Slavism would no longer be an ally on whom we could count and upon whom we could rely, such as we need in view of the attitude of our eastern and western neighbors, which has constantly grown more threatening. (German White Paper.)

In these circumstances, recognizing that the supreme crisis had arrived and interpreting the Austro-Servian controversy as fraught with grave consequences to its own safety, Germany decided upon full support to Austro-Hungarian contentions even to the extent of going to war. The German "White Paper" is remarkable for this frank statement:

> We were able to assure our ally most heartily of our agreement with her view of the situation and to assure her that any action that she might consider it necessary to take in order to put an end to the movement in Servia directed against the existence of the Austro-Hungarian Monarchy would receive our approval. We were fully aware in this connection that warlike moves on the part of Austria-Hungary against Servia would bring Russia into the question and might draw us into a war in accordance with our duties as an ally.

Germany was unfortunate in her diplomacy. She entered the field with the maximum of resistance arrayed against her. Her diplomats were signally at fault in allowing the situation so to develop as to afford their country but one ally in all of Europe.

British Imperial Interests.—In the early stages of the crisis, it was stated in London that the affair was one in which Great Britain was merely a spectator; that in this as in previous Balkan quarrels, it was the policy of Great Britain not to interfere; and that even in the event of a struggle between Teuton and Slav for supremacy in the Balkans, Great Britain would not permit herself to be involved (British Blue Book, No. 87). Sir Edward Grey was explicit on this point: "I do not consider that public opinion here would or ought to sanction our going to war over a Servian quarrel" (*ibid.*, No. 24).

But as the situation stood in Europe, it was clear that the crisis was more than a "Servian quarrel," and if it was not so stated in London, it was unquestionably so understood in Paris, in Berlin, in St. Petersburg and in Vienna. British interests were involved in the crisis, for just as Russia had national interests in Servia, so Great Britain had vital interests in France. With France involved, British Imperial interests were in jeopardy. It is an axiom of British foreign policy that the North Sea and the English Channel must be in the

hands of friendly neighbors. With France on the opposite side of the Channel, Great Britain felt secure. But if France were subordinated as a Great Power, or were crushed in a conflict with Germany, Great Britain would find a predominant power precisely at the place where British Imperial interests were vulnerable. Considerations of safety, therefore, required that Great Britain should array herself against Germany, not because Belgian neutrality was violated, but because France's integrity was involved. Great Britain feared the occupation of the North Sea and of the English Channel by a victorious Germany.

If Great Britain stood aside in 1914, as she did in 1870, and Germany were again victorious, Great Britain would still be burdened with the policy of maintaining her naval supremacy, to which she had been committed for a century or more, and in addition would be compelled to maintain an army proportionately strong. The integrity of France was thus a vital interest of the British Empire. To protect her and ward off aggression were postulates of British security; for the power that dominates France and encroaches on the shore line opposite England has it in its power to impair British sea power, and by so doing challenge the very existence of the Empire.

British participation in the war was, therefore, assured when France was attacked, and not when Belgian neutrality was violated. The question of Belgian neutrality was important, not because of British notions of the inviolability of treaties, but because an attack on Belgium was a covert move on Great Britain; the guns that fired on Liège threatened British security. Belgian neutrality, however important in itself, was but a phase of a larger issue, for if the neutrality of Belgium were respected by Germany and France were attacked, Great Britain could not remain neutral. For this reason Sir Edward Grey refused to pledge the neutrality of Great Britain in exchange for a suggested engagement on the part of Germany to respect the neutrality of Belgium. Prince Lichnowsky, the German ambassador at London, offered this suggestion on Aug. 1. Sir Edward Grey thus reports the interview:

> He [Prince Lichnowsky] asked me whether, if Germany gave a promise not to violate Belgian neutrality, we could engage to remain neutral. I replied that I could not say that; our hands were still free and we were considering what our attitude should be. . . . I did not think that we could give a promise of neutrality on that condition alone.
>
> The Ambassador [Prince Lichnowsky] pressed me as to whether I could not formulate conditions on which we would remain neutral. He even suggested that the integrity of France and her colonies might be guaranteed. I said I felt obliged to refuse definitely any promise to remain neutral on similar terms, and I could only say that we must keep our hands free. (British Blue Book, No. 123.)

The day previous to this interview, Sir Edward Grey had said that the preservation of the neutrality of Belgium was not "a decisive, but an important factor, in determining our attitude" (British Blue Book, No. 119). The larger aspects of the security of Great Britain were emphasized in Sir Edward Grey's speech in the House of Commons a few days later:

> If France is beaten in a struggle of life and death, beaten to her knees, loses her position as a Great Power . . . and if Belgium fell under the same dominating influence, and then Holland, and then Denmark, then would not Mr. Gladstone's words come true, that just opposite to us there would be a common interest against the unmeasured aggrandizement of any Power? (British Blue Book, p. 98.)

Other considerations induced Great Britain to support France. During recent years, the French navy had been mobilized in the Mediterranean, evidently in pursuance of an engagement with Great Britain that the British navy guard the north and west coasts of France. If Great Britain did not at once join with France and Russia, France might withdraw her fleet from the Mediterranean, leave the important British trade routes therein unguarded, and invite hostile attack on Egypt and the Suez Canal. This consideration carried great weight with the House of Com-

mons, whom Sir Edward Grey addressed as follows:

> If we say nothing at this moment, what is France to do with her fleet in the Mediterranean? If we say nothing, it may be that the French fleet is withdrawn from the Mediterranean. . . . Let us assume that consequences which are not yet foreseen . . . make Italy depart from her attitude of neutrality at a time when we are forced in defense of vital British interests ourselves to fight, what then will be the position in the Mediterranean? It might be that at some critical moment those consequences would be forced upon us because our trade routes in the Mediterranean might be vital to this country. Nobody can say that in the course of the next few weeks there is any particular trade route the keeping open of which may not be vital to this country. What will be our position then? (British Blue Book, pp. 94-95.)

He then added that the country would be exposed to "most appalling risk."

There was a final consideration that induced Great Britain to join the Franco-Russian alliance. The balance of power was still an important phase of British foreign policy, the application of which entails the restraining of the dominant power on the Continent. The incentive to apply this principle lay in the jealousy previously displayed at Germany's unprecedented growth as a naval and commercial power.

France and Her Treaties.—The position of France may be best understood in the light of her treaty obligations. The disastrous defeat by Germany in 1870-71 drove her into the arms of Russia, with whom she concluded a rigid alliance. It was, as admitted in France, a *mariage de raison*, consummated because of the recognition of mutual interests. Primarily, the Franco-Russian Alliance was entered into because of the relief which Russia could give in the event of another German invasion; and because in a Continental war, such as the present, Russia would be able to immobilize Germany's forces and *vice versa*.

In recent years, France was committed to a Mediterranean policy, her immediate interests being the development of the North African shore. She entered into an engagement with Great Britain whereby the French fleet would be mobilized in the Mediterranean in consideration of the British fleet guarding the French coasts and the North Sea. These obligations with Russia and Great Britain were assumed by way of precaution to prevent attack. They had no offensive purpose. Nevertheless, during all the negotiations preceding the war, while coöperating fully with Great Britain's efforts for peace, France stood by Russia. Jules Cambon, French ambassador at Berlin, stated that "the relations of Germany with Vienna were no more close than those of France with Russia" (French Yellow Book).

The Documents in the Case.—From underlying causes and policies the inquiry proceeds to the events that immediately preceded the outbreak of the war, as shown by the documentary evidence published by the belligerents. From time to time the warring nations published their "Papers," setting forth certain correspondence and a statement of their side of the case. The "Papers" have their greatest value in throwing light on the immediate occasion of the outbreak, rather than in developing the deep underlying causes that irresistibly drew the two rival groups into conflict. Viewed in this light, the documentary evidence shows why the war broke out in 1914 instead of, let us say, 1916. The supreme clash between the armed camps of Europe appeared inevitable. Crises in Europe were recurring with alarming frequency, and the lines between the triplices were so closely drawn as to make their differences irreconcilable. The struggle appeared, thus, to be directed to the choosing of the occasion, which would be so timed as to take the opponents either unexpectedly or at a disadvantage. And so, in the crisis of 1914, the Teutonic allies, feeling that the time was favorable, appeared reluctant to forego the advantage and presented to the Entente a determined front. On the other hand, the "Papers" are clear in showing the great efforts made by the Entente to preserve peace. Nevertheless, such efforts are consistent with the belief that from the standpoint of the Entente the moment was not advantageous to their common ends.

The Servian Crisis.—In the light of the documentary evidence, the Servian crisis resolved itself into a struggle between Austria-Hungary and Russia, each to destroy the other's prestige in the Balkans. Their respective policies, as shown above, were diametrically opposed. Having been given the occasion for a *démarche*, the Austro-Hungarian Government decided that the time was ripe to score a definite success in the Balkans after years of failure. The situation was decidedly grave for Russia because of the possibility of Servia becoming a vassal of Austria-Hungary, despite the latter's promise to respect Servian independence and territorial integrity (British Blue Book, Nos. 55 and 97).

Throughout the crisis Russia maintained that she had an interest in Servia which required that she be consulted in any measures Austria-Hungary might take. Russia felt offended that she was ignored by Austria-Hungary in the contemplated measures against Servia (*ibid.*, No. 94). It was precisely this feature that determined Austria-Hungary to be firm at all costs, for Austria-Hungary had regarded Servia as within her sphere of influence before the Balkan Wars, at the end of which Russia superseded her. According to the German ambassador at Vienna, Servia was about to receive a lesson which she required, and Russia would keep quiet during the chastisement (*ibid.*, No. 32). The Austrian ambassador at Berlin is reported to have said that Russia neither wanted nor was in a position to make war (*ibid.*, No. 71).

From still another point of view did the Governments of Austria-Hungary and Russia differ radically as to the fate of Servia, according to the "Papers." Austria-Hungary insisted that her conflict with Servia was a matter between themselves and concerned no other Power. Russia maintained that Servia could not be left alone to her fate (*ibid.*, No. 95) and that Austro-Servian conflict had European (and therefore Russian) aspects. This in the final analysis accounts for the impossibility of reconciling the differences between the rivals in the Balkans. The documentary evidence revolves around this difference of viewpoint, Russia insisting that the Austro-Servian controversy should be a subject for international discussion; Austria-Hungary refusing to recognize the right of any power to intervene in her proposed chastisement of Servia.

In these circumstances Russia's attitude was that of willingness, even eagerness, to listen to mediation. M. Sazonof, the Russian Foreign Minister, is therefore shown by the correspondence as being anxious for any sort of mediation, whether by means of a European conference or by way of British-Italian intercession, or even for direct adjustment between the foreign offices of Vienna and St. Petersburg (*ibid.*, Nos. 97 and 139). These efforts for mediation are not to be taken as an indication of a strong Russian desire to preserve the peace at all costs but as a studied plan to throw the Austro-Servian controversy before the court of Europe where claims other than Austro-Hungarian could be heard. When Austria-Hungary, supported by Germany, steadfastly and consistently declined or neglected to listen to European mediation, Russia was prepared to insist even by force of arms that she had interests in Servia which must be recognized by Austria-Hungary. The Russian ambassador at Vienna, recently returned from St. Petersburg, in a conversation with an Austro-Hungarian Under-Secretary of State for Foreign Affairs, made it clear that if war broke out with Servia it would be impossible to localize it, for Russia was not prepared to give way again, as she had done on previous occasions, and especially during the Bosnian crisis of 1908 (*ibid.*, No. 56).

Upon the issue of the Austro-Hungarian ultimatum, Russia immediately asked Austria-Hungary for an extension of time to enable European diplomacy to act (Russian Orange Paper, No. 4), but the request was refused (*ibid.*, Nos. 11 and 12), although both Great Britain and Italy supported Russia's request for an extension (British Blue Book, Nos. 26 and 40). This step failing, the Russian Government requested an adjustment by direct communication between Vienna and St. Petersburg. On July 26 the Russian Minister for Foreign Affairs wrote:

It would seem to me very desirable that the ambassador of Austria-Hungary should be authorized to enter with me into an exchange of private views with the object of an alteration (*remaniement*) in common of some clauses of the Austrian note of 10-23 July. (Russian Orange Paper, No. 25.)

On July 27 it was reported that the Russian ambassador at Vienna urged that the Austrian ambassador at St. Petersburg should be furnished with full powers to continue the discussion with the Russian Minister for Foreign Affairs (British Blue Book, No. 56). On July 28 the Russian ambassador at Vienna reported to St. Petersburg that Count Berchtold, Austro-Hungarian Minister for Foreign Affairs,

told me that on another side the Austro-Hungarian Government, which had only reluctantly decided upon the energetic measures it had taken against Servia, could now neither withdraw nor enter upon any discussion of the terms of the Austro-Hungarian note (Russian Orange Paper, No. 45).

A diplomatic silence between Vienna and St. Petersburg then followed and for a time no communications passed. By the declaration of war on July 28 all hope for direct negotiations between Vienna and St. Petersburg was destroyed. Russia was accordingly compelled by her interest in Servia to proceed to mobilize and to show a determined front lest Austria-Hungary should gain the impression that she could trade on Russia's desire for peace and proceed to crush Servia. Direct communications with Vienna having failed, Russia appealed to Sir Edward Grey, the British Foreign Secretary, to forward his plan for a European conference without delay in order to avoid a general war. At this stage of the crisis all eyes were turned to London, where Sir Edward Grey was devoting his greatest efforts to preserve the peace of Europe.

Sir Edward Grey's Proposed Conference.—Sir Edward Grey sought to solve the difficulty by resorting to the expedient of a European conference to meet at London. His plan was to arrange a conference of representatives of France, Italy, Germany and Great Britain, "for the purpose of discovering an issue which would prevent complications," all active military operations to be suspended pending the results of conference (British Blue Book, No. 36). This appeal to the Concert of Europe, successful in previous crises, was destined to failure. France and Italy accepted without delay, but the peace plan required the adherence of Germany, who was reluctant to bring her ally before a European court. On July 27 it was announced that the German Government accepted mediation "in principle," reserving its right to help Austria-Hungary if attacked (*ibid.*, No. 46). The attitude of Germany was one of loyal support to the Austro-Hungarian contention that the Austro-Servian issue was "one for settlement between Servia and Austria alone, and that there should be no interference from outside in the discussions between those countries" (*ibid.*, No. 2).

As Germany's disinclination to enter a discussion of the situation grew more pronounced, Sir Edward Grey's efforts to preserve the peace of Europe were increased. He appeared to yield to all objections that Germany might offer to the formal character of the conference. On July 28 he wrote to the British ambassador at Berlin:

It would not be an arbitration, but a private and informal discussion to ascertain what suggestion could be made for a settlement. No suggestion would be put forward that had not previously been ascertained to be acceptable to Austria and Russia, with whom the mediating powers could easily keep in touch through their respective allies. (*Ibid.*, No. 67.)

On the following day the British Foreign Secretary put forward the proposal that if Germany really desired mediation and objected to the form and method proposed by himself, he was willing to entertain and support any plan or method that Germany would propose.

The whole idea of mediation or mediating influence was ready to be put in operation by any method that Germany could suggest if mine was not acceptable. In fact, mediation was ready to come into operation by any method that Germany thought possible if only Germany would "press the button" in the interests of peace. (*Ibid.*, No. 84.)

Sir Edward Grey did not relax his efforts even when it seemed that Austria-Hungary was bent on an invasion of Servian territory. He was willing in such event to permit the occupation by Austria-Hungary of Servian territory provided that in accepting mediation the Austro-Hungarian Government would engage not to advance further (British Blue Book, Nos. 88 and 103). On July 31 Sir Edward Grey made his supreme effort:

> I said to German ambassador [Prince Lichnowsky] this morning that if Germany could get any reasonable proposal put forward which made it clear that Germany and Austria were striving to preserve European peace, and that Russia and France would be unreasonable if they rejected it, I would support it at St. Petersburg and Paris and go the length of saying that if Russia and France would not accept it, His Majesty's Government would have nothing more to do with the consequences. (*Ibid.*, No. 111.)

But all efforts at peace through mediation were doomed to failure. The rift in the European Concert was too pronounced. There appeared to be no common ground upon which the powers could meet. The immediate difficulty lay in the finding of a formula which would be acceptable to both Russia and Austria-Hungary. Austria-Hungary mistrusted Servia's assurances and Russia mistrusted Austria-Hungary's intentions with regard to the territorial integrity of Servia. Russia also feared that while Europe was talking mediation Austria-Hungary would accomplish the subjugation of Servia. The situation was clearly in the hands of Germany, who, weighing all possibilities, decided to support Austria-Hungary even in the extreme eventuality of resorting to arms. In its note of July 24 the German Government stated its position concisely: it would insist on the localization of the Austro-Servian conflict even if "incalculable consequences" were to follow.

> The Imperial Government wants to emphasize their opinion that in the present case there is only a question of a matter to be settled exclusively between Austria-Hungary and Servia and that the Great Powers ought seriously to endeavor to reserve it to those two immediately concerned. The Imperial Government desire urgently the localization of the conflict because every interference of another power would, owing to the different treaty obligations, be followed by incalculable consequences. (*Ibid.*, No. 9.)

The evidence in the case deduced from the documents published appears to place the burden on Germany and Austria-Hungary in the crisis of 1914. But, as was stated previously, the "Papers" leave the deep underlying causes untouched. The great racial and economic factors which led to the culmination of groupal policies in Europe, which isolated the central powers in the realm of diplomacy and constructed a barrier against further expansion, continued in full force despite all the efforts by Great Britain to preserve the peace. The justification of the Teutonic allies, if justification they have, may be found *dehors* the diplomatic correspondence, namely, in Germany's fear of isolation and Austria-Hungary's danger of disintegration and their joint realization, that in view of the inevitable, 1914 offered the most favorable battleground.

Great Britain and Neutrality.—All efforts to preserve the peace having failed, the question of British neutrality or solidarity became one of supreme importance to the two hostile groups. Germany sounded Great Britain as to her conditions for neutrality and France and Russia pressed for solidarity. The position of Sir Edward Grey was a most delicate one. Although British interests demanded that Great Britain should enter the war if France were involved (see *supra*), the British Foreign Secretary steadfastly refused to name his terms of neutrality to Germany or to promise British solidarity with the cause of France and Russia. His official reply in each case was that he would reserve to himself complete freedom of action. The "Papers" do not give Sir Edward Grey's precise reasons for refusing to declare himself to France and Russia, beyond the statement of the British ambassador at St. Petersburg that Great Britain could induce Germany "to use her influence at Vienna to avert war by approaching her in the capacity of a friend who

was anxious to preserve peace" (British Blue Book, No. 44). As events subsequently showed, British participation in the war was not only counted upon in Berlin as a factor, but was relied upon in Paris and in St. Petersburg.

The first official information, according to the documents, that Great Britain would not stand aside appeared on July 31, when Sir Edward Grey remarked that the "German Government do not expect our neutrality" (*ibid.*, No. 116). On the same day he said:

> I had even gone so far this morning as to say to the German Ambassador that if France and Germany become involved in war, we should be drawn into it. (*Ibid.*, No. 119.)

These two statements are of unusual interest in indicating British decision to enter the war several days before the violation of Belgian neutrality by Germany. Sir Edward Grey, however, was careful to add that the above statements are not the "same thing as taking an engagement to France." On one point the British Foreign Secretary was clear: the British Government would under no consideration bargain away whatever interest it had in the neutrality of Belgium. The interests of the British Empire were bound with the integrity of Belgium, not as they affected international treaty obligations but as they affected the integrity of northern France.

The pressure upon Sir Edward Grey for a declaration was particularly strong from Russia and France. Finally, on Aug. 2, he gave France this guarded assurance:

> I am authorised to give an assurance that, if the German fleet comes into the Channel or through the North Sea to undertake hostile operations against French coasts or shipping, the British fleet will give all the protection in its power. (*Ibid.*, No. 148.)

This assurance was far from committing Great Britain to enter the war in all events; a certain contingency had been named—the possibility of German naval operations only—and until this contingency arose Great Britain was free to act. The difficulty that confronted Sir Edward Grey, which accounts for his apparent temporizing, lay in the domestic situation. None knew better than the British Foreign Secretary that with France in danger of subordination to German influence British Imperial interests demanded participation on the side of France and Russia, but he was also aware of the uncertain state of public opinion in Great Britain.

The British Cabinet and Public Opinion.—Of all the belligerents Great Britain is the most democratic in its form of government and public opinion there is not easily shaped to support an abstract diplomatic desideratum to the point of going to war. Even Sir Edward Grey's own colleagues in the Cabinet gave indications of a divison as to the policy of British participation. In view of the state of public opinion, the British Foreign Secretary was cautious in promising officially British solidarity with France and Russia. The question of enlistment was a serious one; the British army must be largely drawn from volunteers. The British Foreign Secretary, understanding these difficulties, awaited developments. On July 31 he maintained that "nobody here feels that in this dispute, so far as it has yet gone, British treaties or obligations are involved" (British Blue Book, No. 116). He was careful to point out to the French ambassador at London that "at the present moment" he could not pledge British support, but that "we will certainly consider the situation again directly there is a new development" (*ibid.*). He appreciated the difficulty of pledging Parliament in advance where the Cabinet's policy would be subjected to severe scrutiny. Nevertheless, he divined the possibilities that lay in the violation of the neutrality of Belgium by Germany. On July 31, after explaining to M. Cambon, the French ambassador at London, that "further developments might alter this situation and cause the Government and Parliament to take a view that intervention was justified," he added:

> The preservation of the neutrality of Belgium might be, I would not say, a decisive, but an important, factor in determining our attitude. (*Ibid.*, No. 119.)

On Aug. 1 he became more explicit:

> If there were a violation of the neutrality of Belgium by one combatant, while the other respected it, it would be extremely difficult to restrain public opinion in this country. (*Ibid.*, No. 123.)

The British Foreign Secretary had read British public opinion correctly. German diplomacy gave the British Cabinet the popular support it sought in the violation of the neutrality of Belgium and enabled the Prime Minister to go before Parliament with a plea for support,

> to vindicate the principle that small nationalities are not to be crushed in defiance of international good faith by the arbitrary will of a strong and overmastering power (*ibid.*, p. 103).

Russian Diplomacy.—In the general drift of the politics of Europe that now joined in harmony and now moved at cross purposes, Russian diplomacy moved in a steady stream. Russia had previously doubted whether it could count on British solidarity. The Morocco crisis and Agadir incident convinced Russia that Great Britain would support France if attacked by Germany. Accordingly, when war with Austria-Hungary was imminent, Russia knew that she had it in her power to confront her enemies with the maximum of resistance. Of France she was sure from the very start. Sir G. Buchanan, the British ambassador at St. Petersburg, testifies to this fact:

> The French ambassador gave me to understand that France would fulfill all the obligations entailed by her alliance with Russia if necessity arose, besides supporting Russia strongly in any diplomatic negotiations (British Blue Book, No. 6).

The desideratum of Russian diplomacy was to secure the participation of Great Britain so as to close the seas to Germany. To attain this it showed itself at its best. On July 24, the day following the presentation of the Austro-Hungarian note to Servia, M. Sazonof, the Russian Minister for Foreign Affairs, pressed for British solidarity. When informed that British interests in Servia were nil, he replied that "the general European question was involved, the Servian question being but a part of the former, and that Great Britain could not afford to efface herself from the problems now at issue" (*ibid.*). He saw clearly that the situation which Great Britain contended was a Balkan quarrel had in it the elements of the great European controversy between the hostile groups; for with the support of France, upon which he could always rely, Great Britain was inevitably involved. When it became certain that Austria-Hungary would ignore Russia's claims in Servia, Russia decided upon general mobilization. The documentary evidence shows that Austria-Hungary, backed by Germany, chose the occasion for the conflict and that St. Petersburg put into play the forces that confronted the Teutonic allies with the maximum of resistance.

Belgium and Neutrality.—When the controversy had reached the stage of mobilization it became urgent for Great Britain to know whether the neutrality of Belgium would be respected by her neighbors. On July 31 Sir Edward Grey instructed the British ambassadors at Berlin and at Paris to inquire whether Belgian neutrality would be respected (British Blue Book, No. 114). To Sir F. Villiers, the British Minister to Belgium, he wrote:

> You should say that I assume that the Belgian Government will maintain to the utmost of her power her neutrality, which I desire and expect other powers to uphold and observe (British Blue Book, No. 115).

France replied on the same day:

> French Government are resolved to respect the neutrality of Belgium, and it would only be in the event of some other power violating that neutrality that France might find herself under the necessity, in order to assure defense of her own security, to act otherwise. (*Ibid.*, No. 125.)

Belgium's reply was equally prompt. On Aug. 1 the British Minister at Brussels informed Sir Edward Grey:

> Belgium expects and desires that other powers will observe and uphold her neutrality, which she intends to maintain to the utmost of her power. In so informing me the Minister for Foreign Affairs said that, in the event of

the violation of the neutrality of their territory, they believed that they were in a position to defend themselves against intrusion. (*Ibid.*, No. 128.)

On Aug. 2 the German Government began overtures to Belgium for "friendly neutrality." In a note marked "highly confidential" it was stated that the German Government had received reliable information that French forces were about to march on the Meuse, by way of Givet and Namur, and that in view of this Germany was subject to attack through Belgian territory.

It is an imperative duty for the preservation of Germany to forestall this attack of the enemy.

The German Government would feel keen regret if Belgium should regard as an act of hostility against herself the fact that the measures of the enemies of Germany oblige her on her part to violate Belgian territory. In order to dissipate any misunderstanding the German Government declares as follows:

1. Germany does not contemplate any act of hostility against Belgium. If Belgium consents in the war about to commence to take up an attitude of friendly neutrality toward Germany, the German Government on its part undertakes on the declaration of peace to guarantee the kingdom and its possessions in their whole extent.

2. Germany undertakes under the condition laid down to evacuate Belgian territory as soon as peace is concluded.

3. If Belgium preserves a friendly attitude, Germany is prepared in agreement with the authorities of the Belgian Government, to buy against cash all that is required by her troops and to give indemnity for the damages caused in Belgium.

4. If Belgium behaves in a hostile manner toward the German troops and in particular raises difficulties against their advance by the opposition of the fortifications of the Meuse or by destroying roads, railways, tunnels or other engineering works, Germany will be compelled to consider Belgium as an enemy. In this case Germany will take no engagements toward Belgium, but she will leave the later settlement of relations of the two states toward one another to the decision of arms. (Belgian Gray Paper, No. 20.)

The German Government granted the Belgian Government a time limit of 12 hours in which to communicate its decision. The reply of Belgium was prompt and decisive:

If, contrary to our expectation, a violation of Belgian neutrality were to be committed by France, Belgium would fulfill all her international duties, and her army would offer the most vigorous opposition to the invader.

The treaties of 1839, confirmed by the treaties of 1870, established the independence and the neutrality of Belgium under the guarantee of the powers, and particularly of the Government of his Majesty, King of Prussia.

Belgium has always been faithful to her international obligations; she has fulfilled her duties in a spirit of loyal impartiality; she has neglected no effort to maintain her neutrality or to make it respected.

The attempt against her independence with which the German Government threatens her would constitute a flagrant violation of international law. No strategic interest justifies the violation of that law.

The Belgian Government would, by accepting the propositions which are notified to her, sacrifice the honor of the nation while at the same time betraying her duties toward Europe.

Conscious of the part Belgium has played for more than 80 years in the civilization of the world, she refuses to believe that the independence of Belgium can be preserved only at the expense of violation of her neutrality.

If this hope were disappointed, the Belgian Government has firmly resolved to repulse by every means in her power any attack of her rights. (*Ibid.*, No. 22.)

With Germany thus committed, Sir Edward Grey immediately assumed a decisive attitude. The *casus belli* had been given by German diplomacy. On Aug. 4 Sir Edward Grey instructed the British Minister at Brussels thus:

You should inform Belgian Government that if pressure is applied to them by Germany to induce them to depart from neutrality, his Majesty's Government expect that they will resist by any means in their power, and that his Majesty's Government will support them in offering such resistance, and that his Majesty's Government in this event are prepared to join Russia and France, if desired, in offering to the Belgian Government at once common action for the purpose of resisting use of force by Germany against them, and a guarantee to maintain their independence and integrity in future years. (British Blue Book, No. 155.)

While many reasons have been ascribed for Germany's violation of the

neutrality of Belgium, those of the German Chancellor and of the Secretary of State for Foreign Affairs have official sanction. The violation was based on considerations of national safety. Germany unquestionably considered it vital to throw her troops through Belgian territory with rapidity, if she were to wage successfully a war on both frontiers. The German Foreign Secretary, Herr von Jagow, stated in justification of the violation that "Germany had consequently to disregard Belgian neutrality, it being for her a question of life or death to prevent French advance" (*ibid.*, No. 157). The Imperial German Chancellor, speaking in the Reichstag on Aug. 2, was equally frank:

> We find ourselves in a state of legitimate defense and necessity knows no law. Our troops have occupied Luxemburg and have perhaps already penetrated into Belgium. This is contrary to the provision of the international law. It is true that France has declared at Brussels that she was resolved to respect the neutrality of Belgium as long as her adversary respected it. But we knew that France held herself in readiness to invade Belgium. France could wait. We could not. A French attack on our flank in the region of the Lower Rhine might have become fatal. That is how we have been forced to ignore the just claims of the Governments of Luxemburg and Belgium. The injustice which we are committing in this fashion will be made good by us as soon as we shall have attained our military objects.
>
> Anyone who is threatened to such an extent as we are and who is fighting for his supreme welfare can only think of means of hacking his way through; we find ourselves side by side with Austria. (Belgian Gray Paper, No. 35.)

Upon the invasion of her territory by German troops on Aug. 4 the Government of Belgium appealed to the powers of the Entente as guarantors of her neutrality.

> Belgium appeals to England, to France and to Russia to coöperate as guarantors in the defense of her territory. There should be a concerted and common action, having as its object to resist the measures of force employed by Germany against Belgium and at the same time to guarantee the maintenance of the independence and integrity of Belgium for the future. (*Ibid.*, No. 40.)

It is noteworthy that Belgium did not appeal to the signatories of the Second Hague Convention with reference to neutrality, to which the United States was a party.

Mobilization and Declaration of War.—It is noteworthy that the belligerents carefully refrained from making open declarations of war. Although it was apparent that the countries were really at war, the diplomatic correspondence shows a studious effort to refrain from declaring war; a "state of war" was declared to exist. The character of the treaty obligations of the rival groups forbade the interpretation that the war entered into by an ally was an aggressive war. Each Government, therefore, sought to convey the impression that the war from its standpoint was a defensive one. It was precisely this feature which gave Italy the opportunity to remain neutral. After the German Government had intimated that ultimata had been presented to France and Russia, the Italian Minister for Foreign Affairs, Marquis di San Giuliano, promptly responded:

> The war undertaken by Austria, and the consequences which might result, had in the words of the German ambassador himself, an aggressive object. Both were, therefore, in conflict with the purely defensive character of the Triple Alliance and in such circumstances Italy would remain neutral. (British Blue Book, No. 152.)

On July 30 Russia ordered a general mobilization of her army. At midnight on July 31 the German ambassador at St. Petersburg presented his Government's ultimatum to Russia to begin demobilization within twelve hours, that is to say at noon on Saturday, Aug. 1. On Aug. 1 the German Government ordered the mobilization of the army and navy to begin the following day. On Aug. 1, at seven in the evening, Russia was informed that a state of war existed between Germany and Russia. On Aug. 1 the Austro-Hungarian Government ordered the general mobilization of its army and navy, and Aug. 6 it informed Russia that it was "equally in a state of war with Russia from the present moment" (6 p. m.). On Aug. 1 the President of the French

Republic signed the decree of general mobilization upon information that the German ultimatum had been presented at St. Petersburg, and that Germany was commencing to mobilize. On Aug. 3 the French Government informed the German Government that a "state of war" existed between them, as of 6.45 p. m., on Aug. 3, in consequence of the invasion of French territory by German troops from Luxemburg. On Aug. 4 the British Government sent its ultimatum to Germany to respect the neutrality of Belgium. On Aug. 5 the British Government declared the existence of a "state of war" between Great Britain and Germany as of 11 p. m. on Aug. 4. A "state of war" was declared to exist between Great Britain and Austria-Hungary from midnight on Aug. 12, and on the same day the French Government announced the existence of a "state of war" between France and Austria-Hungary.

Italy's Neutrality.—Italy's political and economic interests were for peace and she was in a fortunate position, geographically, to withstand the maelstrom of war. Italy was also fortunate in that her position as a member of the Triple Alliance was such as to make her sought after by the members of the Triple Entente. The willingness of Great Britain and of France to stand aside while Italy was thrashing Turkey, and the complaisance shown by those countries in the retention by Italy of some of the Ægean Islands, indicate how, although a member of a hostile group, Italy was the recipient of favors from the Triple Entente.

Italy's aloofness in the present war was not altogether a surprise. Although an ally of Austria-Hungary she was not indifferent to the latter's expansion along the Adriatic and through Servia. During the Balkan wars, in August, 1913, Austria-Hungary communicated to Rome her intention of proceeding against Servia, and asked for Italy's support by reason of the Triple Alliance. Signor Giolitti, then the Italian Premier, replied that such action by Austria-Hungary was not defensive, and, therefore, did not call for the application of a *casus foederis* within the meaning of the Triple Alliance. This episode put the Teutonic allies on notice that Italy was reading her treaty obligation in the light of peace.

When war broke out, the Italian Foreign Minister at once announced the attitude of Italy:

> The war undertaken by Austria and the consequences which might result had in the words of the German Ambassador himself an aggressive object. Both were therefore in conflict with the purely defensive character of the Triple Alliance; in such circumstances, Italy would remain neutral.

While this was the view of diplomacy, political and economic conditions forbade the entry of Italy into the war. The industrial situation in Italy was fraught with grave peril to the Government. Thus the very factors on which Germany and Austria-Hungary mistakenly counted in Great Britain and Russia, the internal situation, operated against them in Italy. Moreover, the entry of Great Britain into the war exercised a restraining influence on Italy. All seacoast, she would be particularly open to naval attacks and her cities and her shipping would be jeopardized. She was also under obligations to Great Britain for assistance rendered in the Tripolitan War, when Egypt was prevented from being a Turkish base of operations.

Italy's position, however, is a delicate one. The very bitterness of the present strife is such as to make it imperative for her to be on the winning side. She must consider the possibilities of a European Congress convoked after the war where her contribution to one side or the other will be considered and where rewards will be given for "services rendered." Italian diplomacy will probably find itself equal to the emergency. It has so controlled the domestic situation that it has two strings to its bow. A war against her former allies would be popular, and when occasion warrants, a war against the Triple Entente could readily be shown to be desirable as being in furtherance of Italy's "just aspirations." As the situation now stands, Italy is the recipient of all sorts of promises on both sides. If she decides to draw the sword, she will do so, not for those who promise her most but for those who in all human probability will be in the best

position to redeem the promises given. M. Delcassé has offered the following prize for Italian participation on the side of the Triple Entente:

> England and France have every interest in making her their common friend. I am not talking of sentiment, I am talking of political interest. In the Mediterranean Italy will be for England and France a great element of equilibrium. These two powers offer no opposition to Italian popular aspirations.
>
> Let us dot the I's. I am certain that neither France nor England nor Russia would ever oppose the granting of Trent to Italy. As for Trieste, the consent of France and England has been already obtained and I am under the impression that Russia would also make no objection. As for the rest of the Adriatic, let us speak frankly. Neither France nor any other power of the Triple Entente would dispute with you the possession of Avlona. Do you think we could say as much of Germany?

Her former allies have shown similar concern. By special dispensation, as it were, the *jehad*, or holy war, of the Moslems has been suspended in Tripolitania.

It is difficult to judge of Italy's ultimate action. There are many aspects to the case. The distinction may be made between her aspirations as an Adriatic power and as a Mediterranean power. As the former, she might arrive at an understanding with Austria-Hungary, especially with reference to Albania. As a Mediterranean power, her path is full of difficulties. Unquestionably, both Great Britain and France, both great naval powers, have superior claims to mastery in the Mediterranean; and the possible entry of Russia would complicate the situation. With her former allies, both great military powers, her naval aspirations would not be curtailed. Italy's attitude in retaining possession of a group of the Ægean Islands would seem to indicate that she is venturing on the career of a Mediterranean power.

Japan Joins the Entente.—Although the participation of Japan in the war was generally rumored, her actual entry in which she singled out Germany as the object of attack was a surprise. Between Germany and Japan there had been no *casus belli*, no grievances which, if complained of before hostilities, could not have been satisfied. The war was begun to accomplish a specific purpose, the ousting of Germany from Kiao-chau in the province of Shantung, China. It was in China that these countries were in immediate contact, and it was precisely this point of contact that Japan tried to remove. Accordingly, on Aug. 15, the Japanese Government addressed a demand to the German Government to evacuate Kiao-chau and give up all its rights and vested interests without condition or compensation. The reason ascribed for the intervention was that under the Anglo-Japanese Treaty, Japan was under obligations to assist Great Britain in Asia. The Japanese Government made it clear that it acted "after a full and frank communication" with its ally. The ultimatum demands compliance by Aug. 23, and reads as follows:

> We consider it highly important and necessary in the present situation to take measures to remove the causes of all disturbances of the peace in the Far East and to safeguard the general interest as contemplated by the agreement of Alliance between Japan and Great Britain.
>
> In order to secure a firm and enduring peace in Eastern Asia, the establishment of which is the aim of the said agreement, the Imperial Japanese Government sincerely believes it to be its duty to give the advice to Imperial German Government to carry out the following two propositions:
>
> 1. To withdraw immediately from Japanese and Chinese waters German men-of-war and armed vessels of all kinds, and to disarm at once those which cannot be so withdrawn.
>
> 2. To deliver on a date not later than September 15, to Imperial Japanese authorities without condition or compensation the entire leased territory of Kiao-chau with a view to the eventual restoration of the same to China.

Simultaneously with this announcement M. Takaaki-Kato, the Japanese Foreign Minister, conferred with Mr. Guthrie, the American Ambassador, and made a broad statement assuring the United States that American interests in the Far East would be safeguarded and the integrity of China upheld. Baron Chinda, the Japanese Ambassador at Washington, gave similar assurances to Secretary Bryan.

The situation thus produced was one of gravity and deep concern to the United States. The United States was uncertain how far the Japanese Government would go in view of the inevitable German resistance, whether at Kiao-chau or elsewhere. The Asiatic possessions of Germany were not confined to Kiao-chau; there were the South Sea island possessions that were adjacent to American possessions, and it was this phase of possible future proximity that gave rise to concern in the activities of Japan. Then, too, the United States had particular interests in the integrity of China and in the policy of the "open door," which gave additional ground for anxiety. The Japanese Government was particularly careful in giving its assurances to the United States. On Aug. 18 Count Okuma, the Japanese Premier, said in a public address:

> The Imperial Government will take no such action as could give to a third party any cause of anxiety or uneasiness regarding the safety of their territories or possessions.

In a statement that was intended particularly for the American people, the Premier said:

> Every sense of loyalty and honor oblige Japan to coöperate with Great Britain to clear from these waters the enemies who in the past, the present and the future menace her interests, her trade, her shipping and other people's lives. This Far Eastern situation is not of our seeking. As Premier of Japan, I have stated and I now again state to the people of America and of the world that Japan has no ulterior motive or desire to secure more territory, no thought of depriving China or any other peoples of anything which they now possess.

The United States took occasion to note the disclaimer as to aggrandizement and in a note to the Japanese Government recorded its satisfaction that Japan would restore Kiao-chau to China and would respect the integrity of China and maintain the principle of the "open door" to the commerce of all nations. With reference to Japan's future activities, Secretary Bryan announced:

> Japan has officially notified the United States that she will confine her activities in the war situation to the Far East.

Inasmuch as the intent of the Japanese ultimatum was to restore Kiao-chau to China, tentative negotiations were started looking to the reversion of German leasehold interests directly to China without the intermediation of Japan, but these failed in view of the imperative demands of the Japanese ultimatum.

That Japan was bent on driving Germany not from Kiao-chau merely, but from the Orient, is evidenced by the statement of M. Ozaki, Minister of Justice:

> When Japan captures Kiao-chau and hostilities in the China and Japan seas are over, Japan will stand aside and become an onlooker if the war in Europe is still in progress. If, however, the Germans still retain a standing in the South Sea, which would be a menace to the peace, Japan, in accordance with the Alliance, would consult Great Britain and might coöperate in driving the Germans out of the Orient.

The ultimate interests of Japan in the joining of the Powers of the Entente have been stated as covering a number of objects. In any event, Japan stands to gain handsomely. With reference to Germany, she has driven out a rival, and has left the field clear for expansion in the immediate neighborhood where Germany had her strong foothold. It was also pointed out that Japan had the same fear of Germany in the Shantung Peninsula as Great Britain had of Germany in Belgium; that Korea, Manchuria and China are to Japan what Holland, Belgium and Denmark are to Great Britain; and that possession of the Peninsula of Shantung by Germany was a constant military menace to Japan and to Japanese expansion in the immediate neighborhood. The question of prestige was no inconsiderable one. The impression which Japan was making on Asiatic peoples by reason of her defeat of Russia and by the conquest of a German stronghold was not to be underestimated; for it was fast establishing the conception of Japanese hegemony in the East and the idea was spreading that, in the Orient at least, the Oriental is superior to the Occidental. From still another viewpoint, Japan is bound to gain in that she may reinstate herself

in the good graces of China by carrying out her avowed purpose of restoring Kiao-chau.

Turkey Enters the War.—The entry of Turkey on the side of Germany and Austria-Hungary may be accounted Germany's single diplomatic triumph. Turkish military operations will serve as a diversion to Russia and will increase Great Britain's anxiety for the safety of the Suez Canal. Nevertheless, Russia was probably as much pleased as Germany to have Turkey enter the war, for Russian traditional policy is the acquisition of the Dardanelles. The present development of the war gives Russia the opportunity it sought for centuries. It is precisely this phase of the situation, the incalculable value of the Dardanelles, that makes the situation fraught with peril for the Entente, for the very greatness of the prize may be the cause of discord.

As for Turkey's reasons, her statesmen have probably read the signs of disintegration even in Asia Minor, and they cast their country's fortunes into the arena, hoping that out of the present situation in Europe a new alignment may arise. Turkey always profits by a divided Europe. Only a year ago, when Europe was apparently divided, Turkey seized the opportunity to cross the Maritza River and recaptured Adrianople, although the city had previously been awarded to Bulgaria. Turkish diplomacy fishes best in troubled waters.

The Entente Becomes an Alliance.—On Sept. 5, the Powers of the Triple Entente gave to the world the first written evidence of their solidarity:

> The British, French and Russian Governments mutually engage not to conclude peace separately during the present war. The three Governments agree that when the terms of peace come to be discussed no one of the allies will demand conditions of peace without the previous agreement of each of the other allies.

Coming at a time when the German invasion of France had reached its highest point, it was thought that the stipulation was made to encourage the resistance of France, and to prevent her from entering into separate negotiations with Germany in order to be relieved from further humiliation. But it is evident that this agreement is much broader in scope. The Entente makes public the fact that they will present a united front against their enemies and will not conclude peace until their common purposes have been accomplished. The agreement has further significance. The Powers pledge themselves not to be "disentangled" from the solidarity of their alliance, and each has declared its purpose to exercise self-restraint in the division of the spoils. The agreement may also serve the purpose of putting a check on any individual nation who may be bent on aggrandizement to the detriment of its allies.

NEUTRALITY AND CONTRABAND

The war in Europe has given rise to many difficult questions of neutrality which develop from day to day and which require almost immediate consideration by the neutral powers. The position of the United States is a particularly difficult one. Although a great exporting country, it was confronted at the outset with the problem of getting ships to send its products abroad. This disposed of, the next problem was that of contraband. The problem soon narrowed down to dealing with the maritime policy of Great Britain, as announced from day to day by the British authorities. The two countries are again confronted as they were in the Napoleonic era, the one representing the mastery of the seas, the other typifying the great force that remains neutral while the conflagration rages, that is willing and ready to supply the Continent with its much needed products; the one bent on the policy of starving the enemy and preventing him from getting the raw material necessary for his industrial needs; the other thoroughly equipped to send its agricultural and mineral products so necessary for the sustenance of the belligerents. Sea power is completely master of the situation. In the uncertain state of international law as to the classes of contraband and non-contraband, the division is often left to the

belligerents themselves, and sea power appears to be the arbiter. Each day brings with it new developments of questions of contraband and maritime policy as issued from London. The following divisions, "Neutrality" and "Contraband," serve merely as a rough division of the questions of the day with reference to commerce. The field is so large and so changing that only the more important problems can be indicated.

Neutrality.—The proclamations of the President, the appeals by the various belligerents to the United States, the Belgium Commission, the attitude of the Government of the United States with reference to the proposed loan to France, and the question on submarines said to be built on Great Britain's order, the act of Congress with reference to registry of foreign ships under the American flag and similar topics, are treated in another department (see I, *American History*). With reference to the transfer of ships to the American flag, from the point of view of international law, the most important question hitherto involved in the neutrality regulations of the United States, it appears that no case has been brought forward on which this point alone was at issue. Usually, such transfers are rendered void because done under the necessity of the seller, who desires to evade the consequences to which his vessel is exposed. In the case of the recent transfers, it is thought that they are valid because the seller's necessity is usually absent and the transfer is brought about because of the buyer's opportunity to embark on the carrying trade.

Neutrality of the Panama Canal.—On Nov. 13, the President issued a proclamation with reference to the neutrality of the Panama Canal Zone, and set forth the rules for the use and navigation of the canal and its approaches. Air craft of a belligerent power, public or private, are forbidden to descend or arise within the jurisdiction of the United States at the Canal Zone, or to pass through the air spaces above the lands and waters within said jurisdiction. The use of wireless by a belligerent vessel is forbidden within the zone jurisdiction except on business in connection with the canal. Belligerents are forbidden to embark or disembark troops, munitions of war, or warlike materials in the canal, except in case of necessity, due to accident. Belligerent vessels are not to remain in the territorial waters of the Canal Zone longer than 24 hours at any one time, except in case of distress. A vessel of war of one belligerent shall not depart within 24 hours from the departure of a vessel of an opposing belligerent. Except by special arrangement there shall not be at any one time more than three war vessels of any one nation, including those of its allies, in either terminal port and its adjacent terminal waters, or more than three such vessels in transit through the canal, nor more than six at any one time in all the territorial waters of the Zone. When opposing belligerent vessels of war are simultaneously in the waters of the Canal Zone, the 24-hour rule of departure must be observed between them, the order of departure to be determined by the order of the arrival, except where circumstances make the extension of stay permissible. A vessel of war must not leave within 24 hours after the departure of an adversary's private vessel. Only in case of actual distress and to make a war vessel of a belligerent seaworthy may the repair facilities and docks belonging to the United States be used; and they must always be used under the supervision of the United States authorities.

The proclamation further defines a vessel of war. Belligerent war vessels are not to revictual nor take on stores in the canal except as may be strictly necessary; and no fuel or lubricants shall be taken on board except on written authorization of the canal authorities. For purposes of these rules the Canal Zone is to include the city of Panama and Colon and the harbors adjacent to them. An agreement between the United States and the Republic of Panama accompanies the proclamation, to the effect that hospitality extended in the waters of the Republic of Panama to a vessel in the service of a belligerent, shall serve to deprive such vessel of like hospitality in the Panama Canal Zone for a period of three months and *vice versa*.

On Nov. 20 further orders were given to maintain strict neutrality throughout the Zone. No information is to be given to anyone relative to the cargoes carried by the ships using the waterway and entering the terminal port. Army and Navy officers stationed in the zone are cautioned not to give out information with reference to cargoes, etc. These precautions were taken because of the efforts of British consular agents to learn what ships carried coal and other probable contraband through the canal for possible transfer at sea to German warships. On Dec. 12, Colonel Goethals, Governor of the Canal Zone, requested the authorities in Washington to send two torpedo-boat destroyers to Canal Zone waters to prevent the use of wireless and the taking on of coal and supplies by belligerent vessels, in violation of the neutrality rules that govern the use of the canal.

Contraband and Trade with Belligerents.—The task of Great Britain is not only to sweep the seas of German ships but by her undisputed sea power to prevent the enemy from getting foodstuffs, raw material and other necessary supplies (see also IV, *The European War*). It is in this respect that the neutral countries, particularly those who are engaged in carrying or exporting, often come in contact with British commercial and maritime policy. The one nation represents the power to prevent trade except in channels and on conditions as laid down by its sea power; the others represent the ability to supply, trade and carry, but in so doing must use the seas which are in the absolute control of the former.

From the British viewpoint, the problem is quite complex. Direct trade with the enemy can be controlled absolutely. The problem is to control the trade that is diverted to the enemy indirectly and through devious channels, and this problem is rendered difficult by reason of the geographical relation of Holland and Italy to the enemy. Both countries are admirably situated to render incalculable service to Germany and Austria-Hungary. Both are neutral, and therefore shipments to them are *prima facie* legitimate. The problem is one of transshipment, for Great Britain's ability to starve the enemy ends with the sea, and transshipment is purely a land operation. Trade between the United States and Holland or Italy, or both, is trade between two neutral countries. It is precisely this feature of the situation that is confronting British sea power. In order to control trade with the enemy, she is devising rules of commerce and trade so as to accomplish her ends.

Embargoes. — The first step by Great Britain was to induce the neutral countries in Europe to promulgate embargoes, the effect of which would be to deprive the enemy of certain desired articles of food and trade. Accordingly, Switzerland, Italy, Holland, Sweden, Denmark, Norway, Roumania, Bulgaria, Spain and Portugal have issued embargoes on articles including foodstuffs, clothing, coal, cattle and cotton, as well as gasoline, chemicals, oil and munitions of war. The aggregate list includes about 340 articles. This formidable exclusion is of no inconsiderable help to British sea power. Some of these embargoes were made voluntarily, and some, it is said, are the results of British pressure. The British Government was quite satisfied with the guarantees of Norway, Sweden and Denmark, and on Nov. 9 announced that thereafter contraband goods may be exported from neutral countries to Norway, Sweden and Denmark in neutral bottoms and consigned to individuals in those countries. Great Britain was significantly silent about Italy and Holland. The silence may be ascribed to the fact that the British Government is not quite satisfied with their guarantees as to transshipment and the feeling that the ultimate destination of most of their imports, which have become unusually heavy since the war, is the enemy.

Ultimate Destination and Reëxportation.—In order to stop the trade to the enemy *via* Holland and Italy, Great Britain is evolving theories of law and commerce to the effect that if the ultimate purpose of the articles shipped or traded is the feeding or arming of the enemy, they are seizable. Accordingly Great Britain tentatively asserted her right to seize shipments of foodstuffs and copper from the United States to Holland

and Italy on suspicion that their ultimate destination was Germany and their ultimate purpose the feeding of German soldiers and the manufacture of munitions of war. On Oct. 30 London announced that the Declaration of London had so far been modified by the British Government as to rule that conditional contraband consigned to a neutral port will be liable in future to seizure where the ultimate destination is plainly the enemy. The contention of neutral countries in reply to this assumption is that the liability of a neutral ends with the port of the first destination; that ultimate purpose and ultimate destinations are possibilities too remote for consideration. In order to prevent these exportations, the British Government issued an order in council (known as the "Declaration of London Order in Council, No. 2, 1914") to the effect that conditional contraband shall be liable to capture on board a vessel bound for a neutral port if the goods are consigned to "order," or if the ship's papers do not show a consignee of the goods in the territory belonging to and occupied by the neutral power. To overcome this decree, articles that are conditional contraband must be consigned directly to a neutral Government or to a neutral person residing in a neutral country. Goods consigned "to order" are held by Great Britain to indicate an intent to reëxport.

The following sections deal with specific articles whose designation as being contraband or noncontraband was of great importance to the United States. Only a few leading articles of export will be discussed to illustrate the nature of the problems of contraband.

Foodstuffs.—A three-cornered controversy soon developed between the United States, Holland and Great Britain with particular reference to foodstuffs which the United States was shipping to Holland. Great Britain designated foodstuffs as conditional contraband, in order to prevent Holland from feeding Germany through its "back door." The British Government further asserted its right to prevent the shipping of foodstuffs to Holland from the United States if the amount shipped appeared larger than could be ordinarily utilized at or in the vicinity of the port to which they were consigned.

Holland relieved the tenseness of the situation by coming to an agreement with Great Britain whereby a guarantee is given by the Dutch Government that further consignments will not be reshipped to Germany or any belligerent country and that a ship will not be permitted to dock in Dutch ports if its cargo of foodstuffs is larger than the needs of the vicinity. The Dutch Government further agreed to set up a sort of national store of goods shipped to its ports. The Government will itself purchase all cargoes or parts of cargoes which are consigned to Holland and which Great Britain might regard as conditional contraband. The quality of contraband attaching to goods by reason of the British ruling is taken away by the purchase of such goods by the Dutch Government.

The position of Holland is particularly difficult, for, despite her agreement with Great Britain for her conduct during the war, she is bound by the Convention of the Rhine of 1869 to keep the River Rhine open for goods in transit and to offer no impediment to their passage by the imposition of tolls or otherwise.

Oil.—The question of oil reached its acute stage upon the seizure by British authorities of a number of Standard Oil tankers bound to neutral ports. The *Platura* and the *Brindilla* were seized on their outward voyages. Both were German ships before the war, but were owned by a subsidiary company of the Standard Oil Company. After the war broke out, they took out American registry and were sailing under the American flag when captured. It was thought that the validity of their transfer would be tested by the British prize courts, but it developed that the British authorities were more concerned with the character of the cargoes and their ultimate destination. Oil having been declared conditional contraband by Great Britain, the question of destination was all-important, and the British Government, having been satisfied that the cargoes were consigned for neutral consumption, released the ships.

The case of the *John D. Rockefeller* brought forth the same discussion. This case was rendered difficult by reason of the cargo being consigned "to order." The vessel was bound for Denmark. The British Government ordered the seizure because the ship was bound for a port in the neighborhood of the chief naval port of the enemy. Having satisfied itself of the neutral destination of the cargo, the British Government ordered the vessel released. The case, however, shows the vigilance of the British authorities in shipments of oil lest they ultimately find their way to Germany. The war has shown the immense importance of mineral oil for military purposes. The motor car, the airship and the submarine depend on it entirely and the British authorities are careful to ascertain all the facts with reference to cargoes of oil on neutral ships bound for ports in the neighborhood of the enemy.

Cotton.—The retention by Great Britain of cargoes of cotton and the consequent refusal of marine-insurance companies to write cotton policies caused great anxiety in the United States. The situation was relieved by the announcement of the Department of State in October that it had received the assurance of the British Government that neutral shipments of cotton will not be seized, that cotton had not been put in any of the lists of contraband, and that as far as Great Britain is concerned it is on the free list. The question then arose as to the matter of shipping cotton directly to belligerents. The Department of State was interrogated on this question. Mr. Lansing, Counselor of the Department, advised the Cotton Exchange of New York that the Department could see no legal obstacle to the shipment of cotton by American shippers to either neutrals or belligerents. The advice having been given that cotton could be shipped even to belligerent countries, Ambassador Gerard cabled that Germany would need at least 50,000 bales and Austria-Hungary about 25,000 bales of cotton a month, but despite the assurance of the State Department, insurance underwriters refused to accept the risk of direct shipments to the enemy's ports, feeling that the Department was not justified in making the assurance and desiring a specific declaration by Great Britain on this point before accepting risks on cotton cargoes.

Copper.—Copper is one of the leading exports of the United States. The report for the last fiscal year shows that the value of copper exported was about $145,000,000. Of this, more than $46,000,000 went directly to Germany, and $26,500,000 to Holland, most of which reached Germany. These figures indicate that about half of American copper exported went to Germany. The effect on the copper trade was enormous when Great Britain declared copper to be absolute contraband. Copper being an important material for use in war equipment and munitions, the object of the British Government was to deprive Germany of the raw material. The unusually heavy shipments of copper to Italian ports convinced the British authorities that they were destined for transshipment to Germany. A test case arose in the capture of the American ship *Kroonland*, which was captured *en route* to an Italian port with a cargo consisting mainly of copper. The ship was taken to Gibraltar but was later released. The cargo of copper was seized, however, on the ground that its ultimate destination was Germany. The British action was due in part to the lack of assurance by the Italian Government that its embargo included copper in transit. On Oct. 29 the British Government published a revised list of the contraband of war, including nickel, nickel ore, copper, lead, aluminium, and mineral oils in the class of absolute contraband, and foodstuffs, clothing, coal, gold, silver, fuel, lubricants, sulphur and hides in the class of conditional contraband.

The United States Protests.—On Dec. 29 Ambassador Page transmitted to the British Government a note insisting on better treatment of American commerce. Briefly, the Government of the United States asserts the doctrine of freedom of the seas for American commerce, and particularly the freedom of trade with nations who are not engaged in war. The burden of the complaint is the placing of restrictions by Great Britain

on American commerce, with particular reference to the undue detention of American cargoes destined for neutral ports. These restrictions, it is alleged, are seriously affecting the prosperity of the United States, causing business distress. The President in referring to the note intimated that the United States had cause to claim damages from the British Government for the alleged interference with the freedom of American commerce. The note is the culmination of numerous complaints lodged by the Department of State with the British Foreign Office.

The situation thus produced makes more striking the analogy, stated in a preceding section, between Great Britain and the United States in the Napoleonic wars, when Great Britain insisted upon American ships putting into a British harbor before proceeding to Continental ports. The situation is particularly aggravating to Great Britain because of the peculiar position of Germany and Austria-Hungary in mid-Europe, with little seacoast and surrounded by neutral countries, through which neutral good may be shipped. The controversy emphasizes the inevitable struggle in time of war between the belligerent commanding the seas and the neutral nation which insists on the freedom of the seas.

ALBANIA AND THE ÆGEAN ISLANDS

Among the legacies left to the Concert of Europe by the Balkan Wars were the questions of the pacification and delimitation of Albania (particularly in the south), and the final disposition of the Ægean Islands (see *A. Y. B.*, 1913, p. 102). In each case, the ultimate decision remained in abeyance because of the many evidences of a rift in the unity of the Concert. Until the war broke out, very little was done by way of actual accomplishment; and when the war engrossed Europe, these questions were left to await its determination.

Albania.—On Dec. 31, 1913, the powers of the Triple Alliance replied to the note of Great Britain of Dec. 13, 1913 (*A. Y. B.*, 1913, p. 104). The reply considered the question of the evacuation by Greek troops of the territories assigned to Albania. The powers agreed to the extension of time for such evacuation from Dec. 18 to Jan. 18, but suggested the expediency of securing from Greece some guarantee that the troops would be withdrawn at that date. The Triple Alliance, further, appeared not to concern itself with the matter of the Ægean, being content, in the interest of their member, Italy, to allow the Dodecanese to remain in trust in Italy's hands.

This reply is characteristic in that it furnished evidence of the intent of the Triple Alliance to isolate the two problems and dispose of them separately. The Entente would dispose of them at one time. Italy, however, did not care to bargain its interests in southern Albania at the expense of its possession of the Dodecanese. On Feb. 13, the powers presented a collective note to the Greek Government respecting the withdrawal of its troops from southern Albania and the disposition of the Ægean Islands. The islands that were assigned to Greece (see *infra*) were not to be handed over until the evacuation of the Greek troops, and until the pledge of the Greek Government that it would not encourage the resistance of the Epirotes to the establishment of order in southern Albania. The evacuation, to be complete by March 31, was to begin at Koritza and include the island of Sasseno, at the mouth of the Bay of Avlona.

But recommendations by Europe were of no avail while the internal situation was unstable and seething with revolution. The installation of Prince William of Wied as ruler of Albania and his assumption of the reins of government did little in restoring peace. The Mpret of Albania, as Prince William was called, found his troubles multiplying. The situation in southern Albania, where the Epirotes sought to set up an autonomous government, threw his administration into turmoil.

In April, the Epirotes moved on Koritza, pursuant to their previous declaration that they had set up an autonomous government under the presidency of M. Zographas. Through

the mediation of the International Commission of Control, negotiations were begun at Corfu between the Albanian Government and the "provisional government" of the Epirotes. In May, an agreement was concluded which turned chiefly on questions of religion and language. But the situation was not relieved, and in July Prince William called upon Europe for assistance against a Mussulman rising in the North. After the outbreak of the European War, he left the country to its own resources. Affairs thereafter appeared to be left to the administration of the various geographical and religious communities, under the auspices of the ghost of the Concert. The situation soon developed the intervention of a new power into Albanian affairs. On Oct. 26 Greece announced to the powers that it intended to reoccupy the region of northern Epirus, setting forth at length its reasons, the principal one being the breakdown of the Albanian Government under Prince William of Wied. Hitherto, Italy and Austria-Hungary looked upon Albania as their special preserve. Henceforth Greece will insist on being heard in the final disposition of Albanian affairs. On Dec. 25, Italian troops landed at Avlona, the most important port of Albania. The Italian Government gave as its reason the state of disorder existing in Albania. The seizure of Avlona acquires significance, not only because of the strain imposed on Italo-Turkish relations, but of the possibilities of future difficulty between Italy and Greece in southern Albania. (See also IV, *Foreign Affairs.*)

The Ægean Islands.—On Jan. 15 the Triple Alliance took up the matter of the Ægean Islands as proposed in the British note of Dec. 13, 1914 (*A. Y. B.*, 1913, p. 105). They agreed to the allotment to Greece of the Ægean Islands under Greek occupation except Imbros, Tenedos and the Rabbit Islands (to the north of Tenedos), on the condition that Greek troops evacuate the territories assigned to Albania. The islands excepted are at the mouth of the Dardanelles, and this action of the Triple Alliance may be best understood in the light of German friendship for and interest in Turkey. Lemnos and Samothrace were also allotted to Greece. The powers of the Triple Alliance delivered their replies separately; though not identical, they were substantially similar. Italy, in her note, suggested the undesirability of combining the question of Turkish and Greek ownership of the Ægean Islands in dispute with that of the fate of the other islands.

The interest of Italy in the Dodecanese, held in pledge after the Treaty of Lausanne (*A. Y. B.*, 1912, p. 100), lies in the possibility of "trading off" their possession for concessions in Asia Minor. Her statesmen would, therefore, prefer to deal directly with Turkey in the matter and not with the powers. Italy holds the islands not for money or territory but hopes to use them as a lever to secure concessions in Adalia and there to create for herself a "sphere of work." The Concert having agreed on the specific islands to be awarded to Greece, the question arose as to whether there should be collective enforcement of their decision upon Turkey. Upon this point the Concert again split into the two groups, the Alliance and the Entente. Germany and Austria-Hungary were against coercion. On Feb. 13 and 14 the Powers sent collective notes to Greece and Turkey respectively. In the former, Greece was to guarantee that islands awarded to her were not to be used for naval and military purposes and that the minority rights of Mussulmans were to be respected. In the note to Turkey, the Powers gave the assurance that Greece would prevent contraband traffic between the islands and Ottoman territory. The reply of Turkey was sent to the Powers on Feb. 15. It expressed disappointment, declaring that Turkey would endeavor to secure its just and legitimate demands. Turkey was particularly displeased because of the award to Greece of Chios and Mytilene, which, she claimed, formed an integral part of her Asiatic possessions. In Constantinople it was freely stated that if these two islands were awarded to Greece, Turkey would retake them. Greece took the initiative. On June 13 the *Official Gazette* published a royal decree annexing the islands of Chios and Mytilene, and announced the cession of the island of Sasseno to Albania.

PEACE AND ARBITRATION

JAMES L. TRYON

The Church Peace Union.—The chief development in the organized peace movement of the United States was the foundation on Feb. 10 of the Carnegie Church Peace Union, which was endowed by Andrew Carnegie with $2,000,000 in five per cent. bonds. The object of the Union is to interest religious bodies in international arbitration and peace. Bishop David H. Greer is president and Dr. Frederick Lynch secretary. A headquarters office has been established at 70 Fifth Avenue, New York City. In conjunction with the Federal Council of the Churches of Christ in America, Dr. Charles S. Macfarland, secretary, and committees of European church associations, the Union was instrumental in calling two peace conferences, one for delegates of Catholic churches to meet at Liège, and the other for delegates of Protestant churches to meet at Constance in August. Owing to the outbreak of the war, formal sessions of both bodies had to be given up, but at a preliminary meeting of about 80 delegates representing the United States, Great Britain, France, Switzerland and the Scandinavian countries, held at Constance on Aug. 2, resolutions were passed emphasizing the duty of the churches to work for international peace, and an executive committee composed of representatives of several denominations was created to organize the churches for united action against war in the future. The conference then adjourned to London, where, on Aug. 5, the international situation was discussed.

The European War.—The outbreak of the war caused the postponement of the meetings of the Interparliamentary Union at Stockholm, the Institute of International Law at Munich, the International Law Association at The Hague, and the International Peace Congress at Vienna, the programmes of all of which included questions relating to peace and arbitration. The headquarters of the Interparliamentary Union were temporarily moved from Brussels to Christiania, Norway. The conference of the Union in 1915 was expected to meet in the United States, but if the war continues, it is unlikely to be held. The date of the Hague Conference, though proposed by the United States for 1915, is undetermined.

For several months, *The Peace Movement*, the organ of the Bureau of International Peace at Berne, suspended publication, but a special meeting of the members of the Bureau and other leading pacifists was called at Brussels on July 31 to make a last appeal for peace. The Dutch peace societies have federated for the purpose of instituting an active peace propaganda and have proposed that similar collective action be taken by peace agencies in countries where the forces of peace are not yet united.

Although plans for international congresses have been interrupted by the war, the peace movement has acquired such momentum that no permanent break but rather an acceleration in its onward course is anticipated. This is due to the war itself, which has focused public attention on the need of reform in the conduct of international relations. So far as a consensus of opinion has been revealed in the utterances of publicists and statesmen who are identified in the United States with international justice and peace, the spread of militarism, which with imperialism is regarded as a chief cause of the war, is opposed, as are secret treaties of alliance. Propositions for permanent peace emphasize the necessity for a federation of Europe or an international union of world-wide scope with control over questions of peace and war by the people rather than by cabinets, and with laws against taking territory without consent of its inhabitants. The Union of Democratic Control which has been organized in London substantially on these lines, advocates also the government ownership of armament plants. The reference of controversies to arbitration or judicial methods of procedure, and the institution of commissions of inquiry to determine facts in dispute are insisted upon as before the war; while the enforcement, if necessary, of international treaties as well as court decisions by international military

and naval forces made up of contingents from all nations is advocated.

Carnegie Endowment for International Peace.—Viewed from a broad standpoint of internationalism, the many-sided activities of the Carnegie Endowment for International Peace indicate that it is becoming both an effective and permanent factor in the promotion of international fraternity and justice. The American Branch of the International Conciliation, one of the most influential adjuncts of the Division of Intercourse and Education (Dr. Nicholas Murray Butler, director), has continued its work of supplying information to the press, publishing periodical pamphlet literature, including in 1914 documents relating to the war in Europe, and providing lecturers. As a counterpart of the friendly visit of Dr. Hamilton Wright Mabie to Japan, Dr. Shosuke Sato, dean of the Agricultural College of the Northeastern University of Japan, has been engaged to give addresses in this country on Japan. The efforts of the Division have been reinforced both in America and England by Norman Angell, the publication of whose new magazine *War and Peace* is calculated to extend the influence of his ideas.

The Division of Intercourse and Education has assisted in the circulation of thousands of copies of *The Great Illusion* in Europe. Among the reports published by this division during the year are those made by Dr. Charles W. Eliot, on his visit to the Far East; Dr. Wilhelm Paszkowski, on German international progress in 1913; Dr. Hamilton Wright Mabie, on his sojourn in Japan; the international commission to inquire into the causes and conduct of the Balkan wars; and Dr. Harry Erwin Bard, on the international and cultural relations between the United States and other republics of America (see IV, *Latin America*).

In the Division of Economics and History (Prof. John Bates Clark, director) arrangements were made for holding a conference of the committees of research at Lucerne beginning Aug. 5, but the war prevented other than a small meeting.

In the Division of International Law (Dr. James Brown Scott, director) far-reaching plans have been made for the extension of the scientific study of international law having peace propagandist value of a high order. This Division will secure the publication of the decisions of cases in international law by John Marshall, by the United States Supreme Court generally, by high courts in Great Britain, and by the Hague Court, with its awards. Arrangements for the publication of treaties that are recognized as sources of international law have been made with M. Jules Badevant. A history of the origin and development of international law will be written by Professor Nys, and a revision made by Professor Merignhac of his work on arbitration, with a view to bringing it down to date as a historical survey of the subject; while for the purpose of helping the student as well as the expert certain meritorious treatises on international law will be rendered into languages other than those in which they were written.

On Jan. 29 the Academy of International Law was founded at The Hague with the coöperation of the Endowment and will have its home in the Palace of Peace. The Academy, as the instrument that created it sets forth, will be a "center of advanced study of international law both public and private, and of related sciences." Beginning with 1915, sessions will be held every year from June to October. Great authorities, who will be selected from different countries, will give impartial instruction to advanced students, some of whom are expected to be government appointees from different countries. A board of trustees has been selected with Prof. Louis Renault as president.

Other American Agencies.—The American Peace Society (Dr. Benjamin F. Trueblood, secretary, Arthur Deerin Call, executive director) has within the past seven years increased its membership over 600 per cent. and within two years has added 18 new local societies to its constituent body. Its monthly edition of the *Advocate of Peace*, which since 1835 has been the organ of the American peace movement, has a circulation of 11,000. There is a movement to develop more extensively the membership and scope of the National Peace Council, the

functions of which are by agreement assigned to the Board of Directors of the American Peace Society.

The Lake Mohonk Conference was held May 27-29. Its chairman, Prof. John Bassett Moore, gave a notable review of the international situation. The conference called renewed attention to the necessity of such legislation as shall place all matters involving the relations of the United States to aliens and to foreign nations under the direct and effectual control of the Federal Government and the jurisdiction of the Federal courts. The A B C mediation between the United States and Mexico (see *supra*) was heartily approved not only by the Mohonk Conference but by the peace societies of the country, which regarded it as a step forward in the movement against war and for better relations with Latin-American countries.

The Intercollegiate Peace Association (Prof. Stephen F. Weston of Yellow Springs, Ohio, secretary) has increased the number of intercollegiate oratorical contests. The American colleges were divided into five great groups, all of which sent to Mohonk a candidate for a national prize.

The American School Peace League (Mrs. Fannie Fern Andrews, Boston, secretary) has extended its work generally throughout the country among the teachers of the public schools. The annual meeting of the League was held in St. Paul, where teaching of internationalism in the schools was approved by the National Education Association.

The observance of the Centenary of Peace by the United States and Great Britain will be delayed and probably modified, but it is the intention of the committees to carry forward their work at the proper time. The British Peace Centenary Committee has already purchased Sulgrave Manor, at one time the home of the Washington family in England, for the purpose of making it a place of call for Americans and a museum of Anglo-American history.

During the year the peace cause has lost by death Albert Gobat, Director of the Bureau of International Peace at Berne, the Baroness Von Suttner, author of *Lay Down Your Arms*, and Edwin Ginn, founder of the World Peace Foundation. By his will, Mr. Ginn provided a yearly income of about $50,000 for the perpetuation of his Foundation, which continues under the direction of Edwin D. Mead.

Arbitration.—About thirty treaties have been negotiated by the Department of State embodying the Bryan plan for commissions of inquiry, and other treaties of a like nature are in course of negotiation. Agreements extending the Root arbitration conventions have been signed and proclaimed with Austria-Hungary, Costa Rica, France, Great Britain, Italy, Japan, Norway, Portugal, Spain, Sweden, and Switzerland. Other arbitration treaties have been signed but not proclaimed with The Netherlands and Paraguay. (See also I, *American History.*)

The process of arbitration by special commissions in various countries is too extensive to permit of particular record. Of most interest to the United States, however, are the proceedings for the settlement of the Panama-Costa Rica boundary dispute, which were undertaken as a result of the friendly offices of our Government. Chief Justice White of the United States Supreme Court, as sole arbitrator, made his award Sept. 12, 1914, substantially in favor of the second of two lines asked by Costa Rica. (See also IV, *Latin America.*) The American-British claims commission has decided several cases, reports of which may be found in the *American Journal of International Law.* The commission adjourned its last session, which was held in London, in the hope of resuming its sittings in Washington in 1915. Arrangements have proceeded for reference to the Hague Court of the case of France, Great Britain and Spain against the Government of the Portuguese Republic in the matter of claims relating to the ecclesiastical properties of French, British and Spanish nationals expropriated by the Government after the proclamation of the republic; and of a controversy between France and Peru over financial claims. On June 25 the Hague Court gave its decision sustaining the contention of the Netherlands Government in the case of the Netherlands-Portuguese boundary in the Island of Timor.

IV. FOREIGN AFFAIRS

LATIN AMERICA

ROSCOE R. HILL

General Survey of Conditions.—The feature of the history of the Latin American republics of predominant importance during 1914 was the depressed financial conditions. These countries, rich in natural resources, are dependent upon foreign capital to carry on their economic development. Abundant harvests and over-stimulated prosperity during 1912-13, especially in southern South America, led to extravagance in both public and private expenditure, which necessitated further supplies of money. In other countries disturbed political conditions seriously affected the financial situation. With a fair amount of capital, these difficulties might have been overcome, but on account of the situation in Europe at the beginning of the year, money could be borrowed only at excessive rates of interest if at all, causing embarrassment to some of the governments. Interest and payments on the national debts, however, were regularly paid except in Mexico and Nicaragua, and conversion of paper money continued in Argentina and Brazil and plans for carrying out the same process were made in Chile. Further financial difficulties resulted from the numerous commercial failures, especially in Argentina and Brazil, and from the decided falling off of revenues in all the countries. Several governments at first failed in floating new loans, but were in a fair way to adjust matters when the European War broke out. This added new complications and conditions became worse. Negotiations for prospective loans were dropped, commerce was hampered, industries were suspended, and revenues continued rapidly to decrease. Measures for the protection of credit were taken by declaring bank holidays and closing stock exchanges in all the countries and by establishing moratoria in all except Chile, Colombia, Honduras and Venezuela. All possible means for reducing expenditures were resorted to, including the reduction of salaries of public officials in Argentina, Costa Rica, Nicaragua and Uruguay. Railway construction and public works continued or were suspended depending upon the greater or less ability to secure funds.

The most serious problem of Latin America resulting from the European War was commercial readjustment. England, Germany and France controlled about 44 per cent. of the Latin American trade. Germany's portion of this percentage was completely suspended, and the share of England and France was greatly reduced, producing in Latin America a shortage in manufactured articles and an inability to market its raw materials. This condition was not so acute in the countries surrounding the Caribbean Sea, where the share of the trade controlled by the United States is much larger than it is in the remainder of Latin America.

The changes in international relations, the opening of the Panama Canal, the conflict raging in Europe, and the increasing commercial importance of the Latin American states, are facts which have served to create generally among Latin Americans a feeling of great responsibility in respect to world politics. Further, the effect of the European struggle has been to foster in the Western Hemisphere a sense of common interest and Pan-American solidarity. An evidence

of this fact was the proposal by a number of South American governments and the consideration by the United States and the Latin American countries of suggestions looking toward the creation of a vast neutral zone, including both Americas, for the protection of American commerce against interference from the European belligerents. On the whole the sympathies of Latin America toward the European contestants were the same as those of the United States. There were complaints that the countries of the west coast of South America had allowed violations of their neutrality, but prompt denials, and a reassertion of neutrality were made by the governments of Colombia, Ecuador, Peru and Chile (see also III, *International Relations*).

During the year many new steps looking toward the further expansion of the commercial relations of the United States and Latin America were taken. These included commercial tours, the appointment of commercial attachés by the United States Government, and the establishment of branches of American banks in Latin-American capitals under the terms of the Federal Reserve Act. The European conflict opened up new possibilities in trade and a new interest was developed in the study of Latin American trade opportunities, their conditions, and the manner in which they should be developed.

The political relations of Latin America, except Mexico, and the United States were most friendly, as evidenced by the numerous peace treaties which were signed (see III, *International Relations*). The rather violent adjustments which were necessary to secure the completion of the interoceanic canal have been accepted by all Latin America and the great value of this waterway to its future development is recognized everywhere. Besides, the attitude and acts of the United States Government created a growing sense of security there with regard to the future actions of this country and helped to dispel the fear felt in some quarters, and propagated often by European influences, that the ruling motive of the United States is land hunger.

In order that the relations of the United States and Latin America may be most amicable and harmonious and that a more genuine spirit of coöperation may be engendered, it is necessary that the intellectual and cultural relations be developed coördinately with the commercial and political ones. The steps taken by the Carnegie Endowment for International Peace were a most noteworthy achievement in this direction. A tour of Latin America under its auspices by a representative group of university men headed by Dr. Harry Erwin Bard showed that strong feelings of friendship existed and the official report pointed out ways by which our relations with Latin America, both intellectual and cultural, might be further extended and strengthened. The explorations of Mr. Roosevelt, in which the Brazilians coöperated, also served to develop these relations.

From a political standpoint Latin America was much more disturbed during 1914 than during the preceding year. In addition to Mexico, which continued its civil struggle, Brazil, the Dominican Republic, Nicaragua, Venezuela, Peru, Ecuador and Haiti suffered revolutionary movements of greater or less seriousness. The remaining countries enjoyed internal peace, which was an important element in aiding them to weather the disturbed economic conditions described above.

Social and educational interests received an increasing amount of attention in all Latin America. Extensive plans for municipal betterment were considered and undertaken, including port works, transportation facilities, sewage and sanitation, schools and other public buildings, and workingmen's homes. In educational lines there was a notable tendency to emphasize practical education, athletics and sports.

Argentina.—President Roque Saenz Peña, on account of illness, secured an indefinite leave of absence early in the year, and Vice-President Victorino de la Plaza took control of the administration. Because of certain differences in the policies of the President and Vice-President, the entire Cabinet resigned in February and a new one was formed by Plaza, thus allowing him to carry on in a more

vigorous manner his programme of peace, retrenchment and reform. The possibility of the resumption of power by Saenz Peña caused uncertainty in the political situation until his death on Aug. 8, after which Plaza remained in control of the executive department.

During January and February Congress showed a great inactivity. As it was impossible to secure a quorum in March all bills pending were withdrawn and Congress was adjourned. Congressional elections were held on March 22, the majority of the members returned being Conservatives, although the delegation of Buenos Aires consisted of seven Socialists and three Radicals. The first month of the new session was wasted in debating the validity of the elections. In June considerable excitement was caused by the secret debate on the proposed sale of two warships of the Dreadnought type. Socialists and others advocated the sale, maintaining that the relations with Chile and Brazil were so amicable that no additions to the navy were necessary and that the money could much better be expended for public works and education. In September a congressional committee investigating the construction of the new congressional building found that the Government had been defrauded to an amount exceeding $11,000,000.

The principal problem of the Government was the adjustment of the financial difficulties. The revenues showed a continual decline during the year and the effects of the European War were very marked. On Aug. 3 a bank holiday of a week was declared and two days later a bill passed which provided for a 30-day moratorium of 80 per cent. of all liabilities and the suspension of the withdrawal of gold from the Conversion Office. Land values and rents showed a marked decline. Crop failures and floods added to the general distress.

The opening of the University of Tucumán marked a new step in education in the republic. During the year 46,813,874 pesos paper (peso paper, $0.424) were expended on education. The budget of the nation for 1915 is estimated to balance at 389,728,422 pesos. The public debt amounts to $732,000,000. A much needed census was taken on June 1. Friendly relations between the United States and Argentina were strengthened by the raising of their respective legations to the rank of embassies.

Bolivia. — General Ismael Montes whose term expires in 1918 occupied the presidency through the year and under his able administration the country enjoyed peace. Important fiscal legislation was undertaken in order to improve the financial conditions. The new banking law of February provided that all banks should carry gold equal to five per cent. of their deposits and that foreign banks should have a capital amounting to $250,000 or over. Another law increased the capital of the Bank of the Nation to $20,000,000 and provided that it must have deposited gold coin equal to 40 per cent. of its notes. Distilled and other liquors were declared a state monopoly and the control thereof was leased to a private company for a term of years. Notable progress was made in railway construction.

Brazil.—In the presidential elections in March to choose a successor to Marshal Hermes da Fonseca, the candidates were Dr. Wenceslau Braz, Pereira Gomes and Dr. Ruy Barbosa. An active canvass was being carried on when Barbosa, the Civilista candidate, withdrew, alleging that excessive administrative influence was being exerted on behalf of his opponent. Braz, the Republican Conservative candidate, was then elected without opposition and was inaugurated on Nov. 15 for the four-year term. His programme includes retrenchment and consolidation in finances, protection of the chief exports, coffee and rubber, development of the pastoral products, extension of the cultivation of cotton, cacao and sugar, and legitimate exploitation of the mineral resources of the country.

During the term of Fonseca there were many charges of maladministration, and just preceding the elections the opposition became particularly active. Rumors of a possible attempt against the existing régime spread and the Government, claiming it had information of a projected revolt, declared martial law and suspended the publication of a number of

opposition newspapers. The political situation remained uneasy and martial law was continued during the summer. About the same time there was an uprising in Ceará, led by a priest, Father Cicero, who opposed Governor Rebello on the ground of the latter's unfitness for office. After hesitating a considerable time before interfering in state affairs, President Fonseca sent troops and warships to Ceará and put down the revolt.

The problem which occupied the attention of the Government during the year was the adjustment of the tangled financial situation. In June a new loan was authorized by the Chamber and the corresponding decree was signed by Fonseca. Negotiations were undertaken with French bankers to float the bond issue, but terms so onerous as to be unacceptable to Brazil were proposed. The outbreak of the war in Europe put a stop to the negotiations and a relief of the money stringency was sought in a new issue of 300,000 contos of paper money. Two-thirds of the issue, redeemable by 10 per cent. of the proceeds of the customs dues, was used to satisfy creditors of the Treasury and the remainder was used to aid the banks.

The significant feature in educational development was the attempt to put on a practical basis the Rivadavia law, which provides for a freeing of education from state control. The budget for 1915 estimates the revenues at 334,646 contos paper and 112,000 contos gold and the expenditures at 388,543 contos paper and 88,440 contos gold (conto paper, $324; conto gold, $546). The public debt amounts to $660,000,000.

Chile.—The executive department was in charge of President Ramon Barros Luco, who was elected in 1910. In the fall he reorganized his Cabinet, placing at its head Guillermo Barros Jara, the new Minister of the Interior. Two measures of great importance were considered by Congress during the year. In January the much needed electoral-reform bill was passed and put into operation at once. The financial plan proposed in August provided for economies in the public expenditures, reforms in the system of taxation, including an income tax, and the establishment of a conversion office to regulate the temporary circulating medium which has been issued.

Information in November that Germany was maintaining a naval supply station outside of Valparaiso and that other violations of her neutrality were occurring, caused Chile to declare that she would maintain neutrality even at the cost of war. The growing importance of Chile and the friendly relations with the United States were emphasized by the raising of their respective legations to the rank of embassies. In the budget for 1914, the estimate of the revenues was $78,911,750 and the expenditures $76,334,550. The public debt amounts to $210,000,000.

Colombia.—The presidential election was held on Feb. 8 to choose a successor to President Carlos E. Restrepo, whose administration has been one of peace and prosperity. Before the election the candidate of the Liberal party withdrew and José Vicente Concha was elected. President Concha took the oath of office on Aug. 7 for the ensuing term of four years and organized his Cabinet with Miguel Abadia Méndez, the Minister of the Interior, as its head. The majority of the Cabinet was Conservative, two portfolios having been assigned to members of the Radical party. The topic of absorbing interest was the negotiation of the treaty with the United States for the adjustment of the Panama controversy (see III, *International Relations*). The treaty was debated and ratified without amendment by the Colombian Congress on June 9.

Costa Rica.—No candidate received a majority in the election held in 1913 to choose a successor to President Ricardo Jiménez. The two candidates receiving the highest number of votes having withdrawn, Congress elected Alfredo González Flores, the first designate, as President on May 2 and six days later he took the oath of office. He made Manuel Castro Quesada Secretary of Foreign Affairs and head of the Cabinet. A decision favorable to Costa Rica was given in the long standing boundary dispute with Panama by the arbiter, Chief Justice White of the United States Supreme Court, on Sept. 12. The budget for

1915 estimates the receipts at 9,662,000 colones and the expenditures at 9,661,089 colones (colon, $0.465).

Cuba.—The administration of President Mario Menocal, the head of the Conservative party, continued during 1914. There were some complaints as to the administration and some signs of political unrest. After the President's refusal to extend the time for receiving bids on the new $10,000,000 loan, it was floated through J. P. Morgan & Co. at 94, ten per cent. of the customs receipts having been set aside for its service and redemption. The baring of extensive frauds in the administration of the lottery caused the President and the Cabinet to recommend to Congress that it either be suppressed or restrained in its operations.

The new Congress met on April 6; no adjournment of the old session was taken and thus seven legislators escaped arrest. The decision of the courts sustaining the cancellation of the contracts of the Cuban Ports Co. caused much complaint among foreign bondholders. Nevertheless the Government pursued a firm course in the matter. An incipient revolt in Santa Clara, which was quickly suppressed by the Government, was said to have been instigated by this company. In April a few cases of bubonic plague appeared in Havana, but effective measures were at once taken to stamp it out. The budget for 1914 estimated the expenses at $37,914,739 and the revenues at $41,828,580.

Dominican Republic.—The year was one of great political unrest. Impeachment charges were brought against President José Bordas, but they were rejected by the Senate. In March, because of the political situation, the presidential elections were postponed. A revolution began in April under the leadership of Desiderio Arias, to whom President Bordas had refused to give the sum of $500,000 which had been demanded of him. Arias was outlawed and some of the rebels surrendered, but the movement gained headway, Higuey and Puerto Plata falling into the hands of the rebels. President Bordas bombarded the latter place, but was forced to desist when one of his batteries was silenced by a United States warship after the commander had protested against the bombardment of an unfortified city. In July the rebels made further gains, capturing San Cristobal and Vana, suburbs of Santo Domingo, and the Government began to show signs of inability to resist the opposition. At this juncture the United States Government took an active interest in the situation and President Wilson dispatched a commission to endeavor to bring about peace between the contending factions. An agreement was reached, which included the resignation of Bordas and the appointment of Ramon Baez as Provisional President, on Sept. 5. Baez organized his Cabinet with Gen. Juan Isidro Jimenes, a former President, at its head as Minister of the Interior. In the presidential election General Jimenes received a majority of the popular vote, but in the electoral college he controlled only a plurality. The contest, having been referred to the courts, was decided in favor of Jimenes, who assumed office on Dec. 5 and formed a Cabinet representing the various political groups which had supported him.

Ecuador.—The revolt which broke out late in 1913 against the administration of President Leonidas Plaza continued to gain headway and severe fighting took place at Esmeraldas, which was alternately held by the Federals and the rebels. After some sanguinary battles and the capture of the rebel leaders, Andrade and Pacquel, the revolt collapsed, leaving Plaza in control of the Government. He continued his endeavors to reëstablish the finances and guarantee peace to the nation. A new outbreak in August was quickly put down by the government troops and the uprising under General Concha met severe repulses at Talcan and Esmeraldas in October. Bubonic plague made its appearance at Guayaquil in January, but the steps taken for the sanitation of the city (*A. Y. B.*, 1913, p. 122) will aid in preventing the recurrence of this disease.

Guatemala.—The administration of President Manuel Estrada Cabrera, whose fourth term expires in 1917, gave a year of peace to the country. The financial condition remained good, the Government being able to pay the

interest on the English debt six months in advance. Educational affairs received much attention. Model training schools in charge of foreign professors were opened, the military school was reorganized and reopened, and numerous other schools were established in various parts of the republic. The budget for 1914-15 was estimated to balance at $3,163,794.

Haiti.—A series of revolutions forms the history of Haiti for 1914. After the execution in January of General Celestin and 20 leaders of his revolt, new uprisings broke out against the government of President Orestes, led by Senator Davilmar Theodore and Orestes Zamor. Unsuccessful at first, the rebels soon gathered strength and occupied Cape Haytien and Gonaives. During the struggle American and German marines were landed to protect the foreigners, and when the rebels threatened the capital, the Cabinet fled and Orestes escaped to Colombia. Theodore and Zamor each proclaimed himself head of the Government. Zamor entered Port-au-Prince on Feb. 7 and was chosen President the following day. Theodore continued in revolt against the newly constituted Government but was soon defeated. Zamor was then recognized by the United States (March 1). A new revolution took place in June, in which the rebels under the leadership of Theodore were repulsed a number of times. In October, however, the revolutionary movement was successful, President Zamor was forced into exile and Theodore assumed the Presidency.

The internal troubles created numerous international difficulties. United States warships were constantly in Haitian waters and marines were landed on various occasions. In May Great Britain sent an ultimatum, demanding the payment of an indemnity of $62,000, which was complied with, and Germany and France made a formal demand for control of the customs in June. Finances, also, were disorganized; the Treasury suspended payment of all obligations of the Government in August, and a month later the National Bank of the Republic of Haiti refused further payments of money to the Government. In December the United States undertook negotiations to secure supervisory control of Haitian finances.

Honduras.—President Francisco Bertrand, who is filling out the unexpired term of General Manuel Bonilla, who died in 1913, carried on the programme of internal development initiated by his predecessor. Transportation facilities were improved by the reconstruction of the national railways, the beginning of several new lines of railroad, and the opening of the new highway from the capital to the Pacific coast. The educational system received much attention. A faculty of medicine was organized, the school of arts and trades was furnished with new equipment, normal schools were opened in several departments, and government aid was extended to municipal schools. On account of the close commercial and financial relations with the United States, Honduras was not affected by the European War and the revenues continued to increase. Gold mining was extended and the development of oil wells was commenced.

Mexico.—The civil war begun in 1912 continued to distract the country throughout 1914. There was no social nor economic progress, unless perchance the civil struggle may have brought a little nearer the much needed reforms of the land system. The important features of the year's history were the campaigns of the Constitutionalists, the downfall of Huerta, the split in the ranks of the victorious Constitutionalists, and the difficulties with the United States (see also I, *American History;* and III, *International Relations*).

At the beginning of the year the rebels held the northern states, with large and fairly well armed forces under the leadership of Venustiano Carranza, the First Chief of the Constitutionalists, and Generals Francisco Villa, Alvaro Obregon and Pablo González, commanders of the three main divisions of the army. The march to Mexico City was the plan of campaign, which proceeded with almost uninterrupted success and was only momentarily handicapped by the embargo placed on the shipment of arms by President Wilson.

The Constitutionalists, in order not to leave any of the enemy behind

them, were forced to attack the Federal garrison at the border town of Ojinaga. After severe and undecisive fighting for several days, reinforcements arrived under the command of Villa, and on Jan. 10 the entire Federal force, numbering 4,600, escaped across the Rio Grande to United States territory, where they were interned by the Government (see also XII, *The Army*). In March the advance on Torreon, the key to the route to Mexico, was undertaken. On the 21st Villa arrived before the city and the next 11 days were occupied with the fiercest and most bloody fighting of the war, in which both sides showed great valor. On April 2 the Federal forces under General Velasco evacuated the city and it was immediately occupied by Villa, who issued a decree expelling the Spaniards. Mazatlan and Tampico were captured by the rebels on May 7 and 13, respectively, after sieges of some weeks. After these successes Carranza set up his provisional government at Saltillo. In the attack on Zacatecas, the Constitutionalists under the command of General González were repulsed at first, but succeeded in taking the city, after an assault of four days, on June 24. The report of this battle gave 2,500 killed, 5,000 wounded and 5,000 prisoners. General Obregon contributed his share to the success of the campaigns by the capture of Guadalajara on July 9. The fall of San Luis Potosi and Manzanillo (July 17 and 24) removed the last remaining strongholds on the way to Mexico. The campaigns ended with the entry into the capital of the Constitutionalist troops, under General Obregon, on Aug. 15.

The military successes of the Constitutionalists, financial difficulties and the attitude of the United States Government were the elements contributing to the downfall of Huerta. At the suggestion of the United States Huerta was boycotted by the financial circles of all countries. He then resorted to all possible means to secure funds. Stamp duties and other taxes were increased, the pay of soldiers was stopped and the payment of interest on the national debt was suspended. Despite the adverse internal conditions and the constant insistence of President Wilson that Huerta be eliminated, the Provisional President was still clinging tenaciously to his dictatorial power when the Tampico incident occurred, the United States forces occupied Vera Cruz, and the A. B. C. powers offered their services as mediators in the impending conflict (see I, *American History;* and III, *International Relations*). These events doomed Huerta to a speedy downfall. He succeeded, however, in reorganizing his Cabinet upon the resignation of Eduardo Tamariz, the Secretary of Agriculture, and received material aid by the delivery of a cargo of arms at Puerto Mexico by the German steamer *Ypiranga.* Rumors of the retirement of Huerta began to circulate, but in the presidential elections held in the Federal territory on July 5, he was elected by a small majority of the votes cast. Three days later he presented the protocols of the Niagara Peace Conference to Congress. He then formed a new Cabinet in which Francisco Carbajal, chief justice of the Supreme Court, became the Minister of Foreign Relations. Having sent his family away from the capital, Huerta resigned the Provisional Presidency on July 15 and Carbajal succeeded him.

Carbajal, a stop-gap executive, proceeded to make arrangements for the surrender of the capital and Federal territory to the Constitutionalists. He demanded from Carranza the assurance of an amnesty for the Federal soldiers and a promise that property would be respected. At first Carranza refused to give any promise, but at the suggestion of the United States he agreed to the demands. Thereupon, Carbajal resigned and, with his Cabinet and the Federal army, left the capital on Aug. 13. Two days later, the Constitutionalists under Gen. Alvaro Obregon quietly occupied the city. Carranza made his triumphal entry into Mexico on Aug. 20.

The success of the Constitutionalists at once revealed the factional differences which existed. There were rumors of a break between Carranza and Villa early in the year but this was emphatically denied. In the summer their relations became so strained over the preference shown to General Natera by the First Chief, that mu-

tual friends had considerable difficulty in adjusting their differences. Immediately upon the occupation of Mexico an open rupture occurred, the first clash between the Villistas and Carranzistas taking place at Durango on Aug. 17.

Carranza's first effort, after the occupation of the capital, was to secure the adhesion of the Zapatistas to the Constitutionalist cause. His refusal to accept the plan of Ayala caused Zapata to break off all negotiations. A convention of the generals of the Constitutionalist army was called for Oct. 1 in Mexico City, for the purpose of deciding upon a plan of action and of choosing a Provisional President. Before it met Carranza announced his intention not to accept the Provisional Presidency but to become a candidate at the regular election. At this juncture Villa declared Carranza a traitor and insisted that he must retire from power. Carranza replied by expressing his willingness to leave the country if Villa would do likewise. Meanwhile a battle between the two factions occurred at Torreon (Sept. 25) and the forces of Carranza at Naco were attacked by Villa's troops under General Maytorena. Peace delegates of the two factions agreed that there should be no further movement of troops until after the convention, but this agreement was not respected. Upon the meeting of the convention, Carranza presented his resignation as First Chief, but this was unanimously rejected (Oct. 3). At the suggestion of Villa the convention was moved to Aguascalientes, where both factions were represented and later delegates representing Zapata appeared. This body accepted the resignation of Carranza, but as Villa had surrounded Aguascalientes with his troops and dominated the convention, Carranza repudiated its action and issued a manifesto against Villa. Carranza now demanded the retirement of Villa and Zapata and the relinquishment of their armies to him as a prerequisite to his withdrawal from power. This plan was rejected and the convention declared itself supreme, deposed Villa and Carranza and, on Nov. 2, elected Eulalio Gutierrez Provisional President for 20 days. Villa was placed in command of the forces of the convention and advanced toward Mexico. Carranza withdrew from the capital and set up his seat of government first at Puebla and then at Vera Cruz, which was evacuated by the American troops on Nov. 23 (see I, *American History;* and III, *International Relations*). Zapata occupied Mexico City on Nov. 24 and declared his intention of setting up his own provisional government.

On Dec. 3, however, Villa and Gutierrez made their entry into the capital and the latter formally set up his provisional government, having chosen a Cabinet some days before. The contest between the Constitutionalist forces and those of the Convention continued till the close of the year. A severe battle between the two factions occurred near Torreon (Dec. 16), Puebla was captured from Carranza by an army under Zapata and Angeles (Dec. 18), and the siege of Naco continued. There were rumors of numerous political executions in Mexico City and that these were causing dissensions among the leaders of the Convention. At the close of the year, Gutierrez still remained in power in the capital and Carranza had his government at Vera Cruz.

Nicaragua.—President Adolfo Diaz remained in control of the Government during 1914, but not without serious opposition. In February he found it necessary to decree an extension of a state of siege for 60 days, which was approved by Congress. On account of a threatened revolt United States marines were landed at Bluefields on Aug. 14. It was claimed that the administration was only able to maintain its power because of the intervention of the United States. The state of siege declared on account of this last disturbance was declared at an end on Oct. 11.

In January the Government found it necessary to admit that it was unable to pay $1,000,000 due to foreigners, for which demand was made by the diplomatic representatives. A treaty signed on Aug. 5 with the United States conceding a perpetual right to the construction of an interoceanic canal and a naval base, created a storm of protest on the part of the opposition and among certain other Central American republics,

which claimed that the United States was exerting undue influence and that their rights were injured by the terms of the treaty (see also III, *International Relations*).

Panama.—Panama passed through a rather uneventful year under the administration of President Belisario Porras. Various measures were taken in order to solve the problem of naturalized and alien residents. Early in the year the Chinese refused to comply with the new registration and poll tax law, claiming that it made unfair discriminations. This matter, however, was adjusted by a compliance with the law. A law of November allowed free entrance to Chinese, Syrians and Turks, forbade any foreigners to mix in politics and empowered the President to expel any naturalized foreigner who should attack public authorities or institutions through the press or by other means. There was much opposition to this law on the ground that it was a violation of free speech and hence was unconstitutional. The decision rendered in September in the boundary dispute with Costa Rica was rejected by Panama (see "Costa Rica," *supra*). Labor conditions were badly disturbed by the completion of the Panama Canal, which left many men without work. In December a loan of $3,000,000 to be used in railway construction was secured from the National City Bank of New York.

Paraguay.—President Eduardo Schaerer, whose term expires in 1916, has inaugurated an epoch of peace which made itself felt throughout the country. Reforms were made in the administration of the laws and effective measures were taken to continue peace and secure prosperity. Transportation facilities were extended, building operations were carried on and the agricultural resources were developed. President Schaerer's annual message showed an internal debt of $1,202,150 and a foreign debt of $3,457,000. In addition a new loan of $62,500,000 was floated in May. A commission was appointed to settle the claims arising from the last revolution (1912), which amounted to $2,222,000. The budget for 1914 estimates the receipts at 3,525,300 pesos gold and 20,093,400 pesos paper, and the expenditures at 1,639,133 pesos gold and 61,449,592 pesos paper (peso gold, $0.965; peso paper, $0.10).

Peru.—The friendly attitude of President Guillermo Billinghurst toward Chile, his endeavor to weed out corrupt political practices, using, however, questionable methods for its accomplishment, and his arbitrary treatment and unwise disregard of important political elements, were the main factors responsible for a revolt which caused his overthrow. The suppression of *La Prensa*, the liberal organ, and the arrest of some 20 politicians in Lima were the signal for an outbreak, under the leadership of Col. Oscar Benavides, whose programme was the defense of the constitution. On Feb. 4 an attack was made on the palace, in which Gen. Enrique Varela, the Minister of War and Marine, and ten others were killed and 30 were wounded. President Billinghurst was arrested, forced to resign and sent into exile. Immediately afterwards an executive board, with Benavides as its president, assumed control of the Government. Over the question of a successor to Billinghurst, there were two parties, the Civil-Liberal Alliance or Leguista, who claimed that Roberto Leguia, the Vice-President, should succeed, and the Bloquistas, who maintained that the revolt of Feb. 4 swept away the entire Billinghurst régime and that a new election was necessary. Three calls for a special session of Congress failed because of a lack of quorum; finally a quorum was obtained upon the fourth call and on May 15 Congress chose Benavides as Provisional President. Leguia claimed the Presidency, maintaining that he was elected in a secret session on the above date, but the Supreme Court decided that the election of Benavides was valid. The United States, Argentina, Brazil and Chile recognized the new Government at once. Benavides reorganized his Cabinet on Aug. 22, with Aurelio Sousa as president and Minister of Justice.

Fortunately for the country, the political upheaval was brief, and commerce and industry continued their normal course until the outbreak of the European conflict. A moratorium was declared on Aug. 7, but on Oct. 13 a decree was issued which provided

for the gradual payment of all obligations. Laws were also passed providing for two issues of bank notes, each to an amount of £1,100,000, guaranteed by gold reserves, bonds and real estate. The control of this emission was placed in the hands of a special vigilance committee, with which the banks were obliged to deposit the gold and other assets to guarantee the emission. Renewed interest was taken in educational problems, and a new committee was appointed by Congress to prepare for enactment the project of an educational law drawn up by the special commission appointed in 1910. In November the Government established a patrol of its coasts with warships, to guard against violations of its neutrality. The budget for 1914 estimated the receipts at $17,739,180 and the expenditures at $15,549,180.

Salvador.—President Carlos Melendez, who assumed power on Feb. 9, 1913, resigned in September, in order to become a candidate at the regular presidential elections in 1915. Alfredo Quiñonez Molina, the first designate, succeeded to the Presidency for the remainder of the term. Steps for the further improvement of educational conditions were made by the opening of a new normal school in charge of German instructors, and the completion of the building for the school of arts and trades in the capital. The foreign public debt amounts to about $5,000,000.

Uruguay.—Under President José Battle y Ordóñez, whose term expires in 1915, a new loan of $10,000,000 for public improvements was authorized, but only half of it was floated, on account of the depressed financial conditions. Efforts to secure better social legislation were made by the introduction of a bill providing for an obligatory Sabbath day of rest for trades people and a half holiday on Saturday for laborers. In July Congress discussed another bill providing for the extension of full political rights to women. The extended discussion of this bill, which was considered by many as a waste of time, the abnormal cost of living, the scarcity of work, the imposition of fresh taxes and the encouragement of gambling led to a decided feeling against the Government. In the budget for 1914-15 the revenues were estimated at $31,998,200 and the expenditures at $31,943,675. The public debt amounts to $138,000,000.

Venezuela.—The term of President Juan Vicente Gómez, who endeavored to give the country a good administration, expired April 19. Congress elected Gen. V. Márquez Bustillos Provisional President for one year, pending the regular presidential elections in December, 1914, and January, 1915. Márquez Bustillos organized his Cabinet with César Zumeta as its head and Minister of the Interior. In January Gómez returned to the capital after a five months' campaign which resulted in the suppression of the Castro revolt. A new uprising took place in March. Later José Maria Hernández (El Mocho) joined the rebels and they became very active in the state of Falcón. By the end of July Hernández and the rebels had retreated to British Guiana. Opposition to the administration came to an end in October with the issuance of a proclamation appealing for peace by Angel C. Lange, the last of the revolutionary leaders. Measures for the development of the country were undertaken, including the extension of the system of national highways and the opening of manual training schools. The work of sanitation, undertaken in accordance with the new laws, has extended so far that yellow fever and bubonic plague are practically extirpated. The budget for 1914-15 was estimated to balance at $9,999,234.

CANADA

ERNEST H. GODFREY

Loss of the Empress of Ireland.—Public feeling in Canada was deeply stirred by the loss of the Canadian Pacific Railway Company's steamship *Empress of Ireland*, a maritime disaster similar to that of the *Titanic* in 1912. On May 29, at about two a. m., the *Empress of Ireland* sank during a fog after collision with the Norwegian steamer *Storstad* in the St. Lawrence River near Father Point. Of the total of passengers and crew, number-

ing 1,477, only 465 were saved. A commission of inquiry under the chairmanship of Lord Mersey reported (July 11) that the collision occurred through the *Storstad* changing her course by the porting of her helm, and attributed blame to the *Storstad's* chief officer. It concluded with suggestions for the prevention of similar disasters in future, the closing of water-tight doors during foggy weather and the adoption of rafts on the upper deck to float automatically on the sinking of the ship being among the measures mentioned.

Canada and the European War.— The outbreak of a great European War, involving the British Empire, has in interest and importance overshadowed every other event of the year 1914. The general circumstances of the war are described elsewhere (see III, *International Relations;* and *The European War, infra*). In Canada the measures necessary on the outbreak of hostilities were taken immediately, without confusion, and concurrently with similar action by the rest of the Empire. On Aug. 3 two submarines built at Seattle for Chile were acquired by the Canadian Government at the price of $1,050,000. These, brought in safety to the naval base at Esquimalt, B. C., added materially to the defensive power of Canada on the Pacific coast. The Canadian Naval Service was placed legally at the King's disposal, the *Rainbow* being already in commission off the Pacific coast. The *Niobe* on the Atlantic coast was rapidly commissioned and put to sea. Parliament met at Ottawa on Aug. 18 and the session lasted until Aug. 22, the proceedings during these four days being marked by intense patriotism and the entire absence of partisanship. Eight legislative enactments of this session included a defense appropriation of $50,000,000. Wide powers were given to the Government for war purposes, the financial situation of the country was dealt with, and additional revenue was provided for by increasing the customs and excise duties, principally in respect of coffee, sugar, spiritous liquors and tobacco. The Canadian Patriotic Fund for the assistance of relatives and dependents of soldiers on active service was incorporated; it now exceeds $2,000,000. Steps were taken to organize a Canadian expeditionary force, and volunteer troops comprising cavalry, artillery and infantry, numbering with subsidiary units upwards of 35,000 officers and men, were speedily assembled for preliminary training at Valcartier, Quebec. Within ten weeks the first contingent of over 33,000 troops embarked on transports at Quebec, crossed the Atlantic under convoy of the British Navy and were welcomed with great enthusiasm at Plymouth on Oct. 16. Proceeding to Salisbury Plain for final training, the Canadian troops at the time of writing are reported as rapidly developing into a thoroughly efficient force. Preparations to send further contingents are being made. Sir Robert Borden, the Prime Minister, in a speech at Toronto on Dec. 6 announced that 50,000 men were being trained in Canada, and that this number would be maintained by the enlistment of additional men as each contingent went forward. He further stated that the Dominion forces in Canada and abroad would soon exceed 100,000 men.

Very remarkable was the prompt and spontaneous offer to the Mother Country of free gifts of Canadian produce. On Aug. 6, the Duke of Connaught cabled to the British Colonial Secretary the offer by the people of Canada of one million bags of flour. This offer was accepted with gratitude by the British Government, who stated that it would be of the greatest use for the steadying of prices and relief of distress. The example thus set was followed by each of the nine provinces, and the following is a list of the gifts offered: Prince Edward Island, 100,000 bu. of oats, also hay and cheese; Nova Scotia, 100,000 tons of coal (commuted by money payment); New Brunswick, 100,000 bu. of potatoes; Quebec, 4,000,000 lb. of cheese; Ontario, 250,000 bags of flour; Manitoba, 50,000 bags of flour; Saskatchewan, 1,500 horses; Alberta, 500,000 bu. of oats; and British Columbia, 1,250,000 tins of salmon.

Railway Construction.— According to the official railway statistics of the Department of Railways and Canals for the year ended June 30, 1914, the total railway mileage of the Do-

minion (not including 22,890 miles under construction) was 30,795, an increase of 1,491 miles over the preceding year. During the same year $276,990,069 was added to the capital liability of the railways, bringing the total up to $1,808,820,761, of which $853,110,653 was represented by stocks, $782,402,638 by bonds and $173,307,470 by consolidated debenture stock.

Immigration.—For the fiscal year ended March 31, 1914, the number of immigrant arrivals, for the first time since 1909, showed a slight falling off. The total was 384,878 in 1913-14, as compared with the record of 402,432 in 1912-13. Of the total in 1913-14, 142,622 were from the United Kingdom, 107,530 from the United States and 134,726 from other countries. The decline was in the first two of these categories, as the immigrants from "other countries," mostly European, exceeded the number of the previous year by 21,845. Naturally the war has had an effect in restricting immigration since August, but to what extent figures are not yet available to show.

Oriental Immigration.—Canada has consistently followed a policy of exclusion with regard to immigration from oriental countries. With the exception of certain classes, such as consular officers, members of the learned professions and merchants, Chinese immigrants have been required to pay a head tax, fixed originally at $50 in 1885, increased to $100 in 1901, and since 1903 standing at $500. Notwithstanding this tax Chinese immigrants have increased from 1,884 in 1908 to 7,445 in 1913 and 5,512 in 1914. For the year ended March 31, 1914, the revenue from the Chinese head tax amounted to $2,637,000, which is more by $743,902 than the amount expended upon immigration during the same period.

During the years 1907 and 1908, and following upon Canadian adherence (Jan. 30, 1907) to the Anglo-Japanese commercial treaty of 1894, there was a considerable annual influx into British Columbia of Japanese laborers, whose advent affected the conditions of the labor market and aroused feeling among the white population. In 1906-07 the Japanese arrivals numbered 2,042 and in 1907-08 they were as many as 7,601. Riots at Vancouver in September, 1907, resulted in damage to the property of Japanese residents for which compensation was paid by the Canadian Government. As a result of subsequent negotiations the Government of Japan, at the end of the year 1907, adopted regulations for the restriction of emigration from Japan to Canada, and since that date the number of Japanese immigrants, though annually increasing since 1910, has been kept within bounds, the number in 1913-14 being 856.

From 1905 to 1908 the number of Hindu immigrants grew from 45 to 2,623, and measures were taken for the exclusion from Canada of Hindus and other orientals. Early in 1908 a Canadian Order in Council prohibiting the landing of immigrants in Canada unless coming direct from the country of their birth or citizenship, operated to the exclusion of Japanese laborers from Hawaii and of Hindus from Hong Kong and Shanghai. Regulations made under the Immigration Act of 1906 imposing money qualifications upon intending immigrants operated in the same direction, and from 1909 to 1913 the number of Hindu immigrants did not exceed 12 annually, although in the year 1913-14 the number rose to 88. In consequence of the overcrowded state of the labor market in British Columbia an Order in Council of Dec. 8, 1913, prohibited the landing at ports in British Columbia of artisans and skilled or unskilled laborers, a prohibition which still remains in force. In May, 1914, a determined effort was made on behalf of emigrant Hindus to test the efficacy of the Canadian laws restricting oriental immigration. A Japanese steamer, the *Komogata Maru*, with 376 Hindus on board, sailed from Shanghai, and on May 23 arrived off Vancouver. A few of the passengers who proved that they were returning to Canada were allowed to land; but the others, unable to satisfy the requirements of the regulations in force, were refused admission by the immigration authorities. Some amount of rioting took place, but eventually the Hindus were induced to desist from their attempts to land, and the sail-

ing of the ship from Vancouver on July 23 closed the matter.

Imperial Naturalization.—For many years the question of the naturalization of aliens within the different self-governing dominions of the British Empire has occupied public attention, and especially has been the subject of discussion and of resolutions at the Imperial Conferences of 1902, 1907 and 1911. At the Imperial Conference of 1911 an agreement was arrived at in consequence of which the Imperial Parliament has enacted the British Nationality and Status of Aliens Act (1914), wherein it is provided that the part of the Act which relates to naturalization shall have no application to the self-governing dominions unless adopted by their respective legislatures. The effect of the legislation which has been or will be enacted by the Imperial Parliament and the parliaments of the dominions is that persons naturalized in any of these dominions or in the United Kingdom become British subjects throughout the Empire, thus abolishing the anomaly formerly existing that an alien naturalized in Canada would be a British subject in Canada, but would not possess that status outside of the Dominion. On June 12, 1914, the Dominion Parliament passed the Naturalization Act (1914, Ch. 44), which gives effect to the Imperial legislation so far as Canada is concerned. This act makes certain changes in the law of naturalization as previously in force in Canada, the chief being that a person born out of the realm is regarded as a British subject if his father is such either by birth or naturalization, instead of as under the previously existing law which required that his father or grandfather should be a natural-born British subject. Also the new Act requires that before naturalization can be granted in Canada to any applicant for naturalization he must have resided in Canada for not less than one year immediately preceding the application and must have resided either in Canada or in some other part of the King's dominions for a period of four years within the last eight years before the application. Formerly residence in Canada for a period of three years was required. Other provisions of the Act relate to the effect of marriage upon the status of women, the loss of British nationality and the status of aliens. By an amending Act of Aug. 22, passed during the special war session, widows who were British subjects before their marriage to aliens are exempted from the requirements as to residence before resumption of British nationality, and married women whose husbands cease to be British subjects may retain their British nationality.

Agriculture.—In marked contrast to 1913 the season of 1914 proved particularly unfavorable to the growth of grain. Persistent drought throughout the greater part of the northwest provinces resulted in a yield per acre of the chief cereals lower than in any season since 1910 and lower than the average of the six years ended 1913. In Ontario and Quebec, though the grain crops suffered from a dry season, the conditions were not so unfavorable, while in the Maritime provinces a favorable season resulted in good returns. A special feature of the season in eastern Canada was the excellence of the potato harvest, which both in yield and quality is the finest on record. Apples, too, gave an excellent yield. The following is the provisional estimate of the yield in thousands of bushels, tons or pounds of the principal field crops in the Dominion for 1914 compared with 1913:

Crop	1913 (000 omitted)	1914 (000 omitted)
Wheat, bus	231,717	158,223
Oats, bus	404,669	311,426
Rye, bus	2,300	2,258
Barley, bus	48,319	34,591
Flaxseed, bus	17,539	7,533
Corn, bus	16,768	14,732
Potatoes, bus	78,544	85,672
Turnips and other roots, bus	66,788	69,003
Hay and clover, tons	10,859	10,259
Fodder corn, tons	2,616	3,251
Sugar beets, tons	148	146
Alfalfa, tons	238	218
Tobacco, lb	12,500	11,000

Note: The above quantities are expressed as bushels of weight: 60 lb. wheat, potatoes, turnips, etc.; 56 lb. rye, flaxseed and corn; 48 lb. barley; 34 lb. oats; the ton 2,000 lb.

The following were the estimated numbers of live stock in Canada July 31, 1914: horses, 2,947,738; cat-

tle, 6,036,817; sheep, 2,058,045; swine, 3,434,261. Excepting horses these figures are somewhat less than in 1913; but the reduced duties of the United States Customs Tariff of Oct. 3, 1913, resulted in a larger exportation across the border. For the year ended Sept. 30, 1914, the exports to the United States from Canada were: horses, 3,803; cattle, 257,288; sheep, 25,702; swine, 147,310; as compared with 1913 when the exports numbered horses, 1,891; cattle, 61,805; sheep, 11,257; and swine, 86.

Forests, Mines and Fisheries.—In each of these three departments Canada continues to make steady progress. The values of forest products are estimated to exceed $182,000,000. Lumber, lath, shingles, firewood, pulpwood, posts, rails and cross-ties account for $164,000,000, or 91 per cent. of the total. The census of mineral production taken in 1911 shows percentage increases during ten years ranging from 62 to 154 per cent. as shown by the figures in the following table:

	1900	1910	Increase, per cent.
Mines or works	1,373	2,222	61.84
Value of buildings and plant	$42,771,803	$108,506,051	153.68
Employees on salaries	1,527	2,884	89.86
Salaries	$1,512,821	$3,317,030	119.26
Employees on wages	37,065	67,150	81.16
Wages	$16,336,273	$39,129,941	139.53
Value of production	$47,956,862	$122,004,932	154.40

For the fiscal year ended March 31, 1914, the total marketed value of all kinds of fish, fish products and marine animals, taken by Canadian fishermen in both sea and inland fisheries, was $33,207,748, as compared with $33,389,464 in 1912-13.

Commerce.—For the fiscal year ended March 31, the aggregate external trade of Canada attained the value of $1,129,744,725, as compared with $1,085,264,449, in 1912-13. Thus the record of 1912-13, when for the first time the value of the total trade of Canada was over a billion dollars, was exceeded by $44,480,276, an increase during the year at the rate of 4.1 per cent. A noteworthy feature of this increase is that it was due to the expansion not of imports but of exports. These increased during the year by $85,765,871, or in the ratio of 21.8 per cent., while the value of the imports declined by $41,285,595, or 5.9 per cent. The ratio of exports to imports increased from 56.83 per cent. in 1912-13 to 73.60 per cent. in 1913-14. The total trade of the Dominion with the United Kingdom in 1913-14 was of the value of $355,144,510, and with the United States $626,265,385, the balance of $148,334,830 representing trade with countries other than these two. The total value of imports for home consumption in 1913-14, excluding coin and bullion, was $618,328,874, including $131,942,249 from the United Kingdom, $395,565,328 from the United States and $90,821,297 from countries other than these, while the exports of Canadian produce were of the total value of $431,588,439, including $215,253,954 to the United Kingdom, $163,372,690 to the United States and $52,961,795 to countries other than these. Of the total special trade therefore of Canada, reckoning by values, 53.2 per cent. is with the United States, 33.1 per cent. with the United Kingdom and 13.7 per cent. with other countries. Of the total value of exports close upon half, or 49.9 per cent., are to the United Kingdom, 37.8 per cent. to the United States, and 12.3 per cent. to other countries; but in the case of imports not less than 63.9 per cent. come from the United States, the proportion from the United Kingdom being 21.3 per cent. and from other countries 14.8 per cent.

As in other countries the war has caused commercial dislocation through shock to credit and the rupture of trading relations between the belligerent powers. For the first seven months of the current fiscal year (April to October) the total trade of Canada, excluding coin and bullion, was by value $593,037,483, as compared with $670,848,763 in 1913, the difference being entirely through diminished im-

ports. There is, however, another side to the shield, and efforts by the Government to stimulate and assist producers and manufacturers to take advantage of the opportunities created by new conditions are arousing much interest. The outlook for practical results is hopeful.

Revenue and Expenditure.—For the year ended March 31, 1914, the public revenue was $163,174,394, and the expenditure $127,384,473, thus leaving a surplus of $35,789,921. Canada, being largely dependent for revenue upon import duties, the war in its restriction of trade has necessarily lessened receipts; but previously there had been some decline in consequence of the widespread financial stringency. However, the revenue for the eight months ended Nov. 30, 1914, was $90,468,003, as compared with $114,640,296 in the corresponding period of 1913. For the same months the expenditure was $75,708,628 as compared with $66,678,970 in 1913.

Legislation.—The third session of the twelfth Parliament of Canada, held at Ottawa from Jan. 15 to June 12, 1914, resulted in the passing of 59 public general and 128 local and private acts. Representation in the House of Commons, naturalization of aliens and incorporation of loan and trust companies were among the more important subjects of public legislation.

Under the Representation Act (Ch. 51), which takes effect after dissolution of the present Parliament, the House of Commons will in future consist of 234 members, a net increase of 13. In the redistribution Prince Edward Island loses one member, Nova Scotia and New Brunswick two members each and Ontario four members, while the gain to western Canada is 22, namely, Manitoba five, Saskatchewan six, Alberta five and British Columbia six members.

Two acts (Chs. 40 and 55) deal respectively with loan companies and trust companies. They follow generally the lines of the legislation affecting banks as described in the last issue (*A. Y. B.*, 1913, p. 131). The Fisheries Act (Ch. 8), consisting of 93 sections, effects, with amendments, a much needed consolidation of the laws respecting fisheries and fishing. The Fish Inspection Act (Ch. 45) provides for the inspection and branding of pickled fish, including herring, alewives, mackerel and salmon. It comes into force on May 1, 1915.

The White Phosphorus Matches Act (Ch. 12) prohibits the manufacture, importation and sale of matches made with white phosphorus, a substance well known to possess poisonous properties of dangerous character. The Act will come into force on Jan. 1, 1915, excepting Section 5 prohibiting the sale or use of matches made with white phosphorus, which section will not be operative until Jan. 1, 1916. The Maritime Conventions Act (Ch. 13) carries into effect in Canada two conventions dealing respectively with collisions between vessels and with salvage, which were signed at Brussels in 1910. It brings the law of Canada into harmony with British law as enacted by the Maritime Conventions Act, 1911, of the Imperial Parliament. The Cold Storage Warehouse Act (Ch. 22) provides for the regulation of all public cold storage warehouses in Canada.

The Customs Tariff Act (Ch. 26) makes alterations in the rates of duty applicable to 53 items in Schedule A of the Customs Tariff of 1907, as amended by Chapter 15 of the Statutes of 1913, and to six items in Schedule B of the Tariff of 1907. The Act also gives power to the Governor in Council to impose a surtax not exceeding 20 per cent. ad valorem in the case of goods imported from foreign countries which treat Canadian imports less favorably than those from other countries, and to make regulations affecting the drawback on pig iron used in the manufacture of mowing machines and other agricultural implements specified. To Schedule C (prohibited goods) of the Tariff of 1907 are added aigrettes, egret and osprey plumes and the feathers, etc., of wild birds. The plumage of certain birds, including the ostrich and pheasant, is excepted from the prohibition, which takes effect on Jan. 1, 1915.

The Explosives Act (Ch. 31) regulates the manufacture, testing, storage and importation of explosives with a view to minimize accidents. The Naturalization Act (Ch. 44) has already been described (*supra*).

EUROPE, ASIA AND AFRICA[1]

FRANCIS G. WICKWARE

THE BRITISH EMPIRE

THE UNITED KINGDOM

The Parliamentary Session.—King George opened on Feb. 10 a new session of Parliament charged with potentialities of disaster which excited the apprehensions of all classes and parties. The King's Speech announced new and important legislation, but the chief business of the session was the passage for the third time, and consequent enactment, of the bill granting home rule to Ireland, and with it the measures for the disestablishment of the Church of England in Wales and the abolition of plural voting. On the success of this programme the Asquith Government hazarded its political prospects and the future of the Liberal party. To the establishment of an Irish Parliament it was rigidly pledged by its alliance with the Irish Nationalists. The Unionist Opposition was equally pledged to prevent the inclusion of Ulster in any scheme of home rule for Ireland, by the defeat of the Home Rule bill if possible, if not, by support of the Ulster loyalists in a threatened appeal to arms.

Home Rule for Ireland.—The informal conferences between Mr. Asquith and Mr. Bonar Law promised at the close of 1913 (*A. Y. B.*, 1913, p. 133) failed to yield a solution of the Ulster problem. But they served a useful purpose in convincing the Liberal Government of the serious intent of the resistance of Ulster and in bringing the Ministry to a realization of the gravity of a situation which they had been inclined hitherto to depreciate. In September, 1913, the Ulster Unionist Council perfected the organization of a complete provisional government, to be instituted on the enactment of the Home Rule bill. At the same time the Council created an indemnity fund of £1,000,000 for members of the Ulster Volunteer Force which was fully subscribed early in January. The Volunteer Force at the close of 1913 was recruited to a strength of nearly 100,000 men fully armed and equipped, while as many more were submitting themselves to semi-military drill and discipline. The menace of this formidable body was recognized in two proclamations of Dec. 5, 1913, prohibiting the importation into Ireland and the coastwise carriage of military arms and ammunition.

Adverting to the failure of the interparty conferences, King George's speech at the opening of the session on Feb. 10 expressed the solemn hope that, "in a matter . . . . which, unless handled now with foresight, judgment, and in the spirit of mutual concession, threatens grave future difficulties, . . . the good will and cooperation of men of all parties and creeds may heal dissension and lay the foundations of a lasting settlement." In response to this earnest appeal Parliament approached the Ulster problem in a grave and serious spirit. An Opposition amendment to the address in reply, affirming that it would be disastrous to proceed further with the Home Rule bill until it had been submitted to the judgment of the people, was rejected by the House of Commons on Feb. 11, after a debate conducted on a high plane, by the small majority of 78. But Mr. Asquith, in a conciliatory speech, accepted for the Government the responsibility of initiative in proposals for a settlement by consent and promised that suggestions to that end would be submitted to Parliament without avoidable delay.

The Home Rule bill was introduced by Augustin Birrell, Chief Secretary for Ireland, on March 5, and on the 9th, in moving the second reading, Mr. Asquith unfolded the Government's concessions to Ulster. The Government offered as the price of peace to permit any of the nine counties of Ulster, including the county boroughs of Belfast and Londonderry, to elect by a bare majority of the Parliamentary electors, between the enactment of the bill and the establishment of home

[1] The European War is discussed in a separate article, following this section.

rule, to remain outside the scheme for a period of six years from the first meeting of the Irish Parliament; at the end of that period, unless otherwise determined by the Imperial Parliament, the counties thus temporarily excluded should automatically come under the provisions of the Act. Mr. Redmond for the Nationalists endorsed these proposals, although they meant the sacrifice of many of their cherished ideals. But Mr. Bonar Law warned the Government that the offer, if it represented the utmost limit of concession, in no way altered the gravity of the situation, since it contemplated the ultimate inclusion of the Ulster counties regardless of the wishes of their people. In moving on March 19 a vote of censure on the Government for their refusal to supply complete details of the proposed modification of the bill unless the general principle of the exclusion scheme was accepted, Mr. Law offered on behalf of the Unionists to accept the verdict of the country if the Government would submit their proposals to a referendum; otherwise he formally rejected the offer of temporary exclusion of the Ulster counties. Mr. Asquith made it clear that the Government was resolved to make no further concessions and to abide by the issue. The motion of censure was defeated by a majority of 93, and at the conclusion of the debate Sir Edward Carson left the House of Commons and proceeded to Belfast, to allay the apprehensions excited in Ulster by the Government's implied threat of coercion.

The crisis at this point entered a new phase. On March 14 the War Office had issued instructions to Sir Arthur Paget, the general officer commanding in Ireland, to take all necessary steps adequately to guard the military depots in Ulster against possible raids on the stores of arms and ammunition. After a consultation with Colonel Seely in London, General Paget summoned his generals of division, inquired whether they were prepared to place military duty above all other considerations, and informed them that in the event of active operations against Ulster, officers domiciled in the province might obtain leave of absence, while other officers objecting to the service would be permitted to resign. Late in the evening of Sir Edward Carson's abrupt departure for Ireland, General Paget ordered a new disposal of a part of the regular troops under his command, which added strong reinforcements to the garrisons in Ulster. The garrison at the Curragh Camp was ordered to be prepared on a moment's notice for active service in the North. Gen. Hubert P. Gough, brigadier of the 3d Cavalry Brigade stationed at the Curragh, applied to General Paget for further information of the nature of the service and informed him that if the duty involved the initiation of active military operations against Ulster, he and 57 officers of his command would prefer to be dismissed from the service. The War Office at once summoned the senior officers to London and instructed General Paget to refuse all resignations. In an official statement on March 21, the Government explained that the transfers of troops in Ireland were purely precautionary and denied any intention of moving troops into Ulster for any other purpose. On the 23d Colonel Seely announced in the House of Commons that, the inquiry of the Army Council having shown the resignations of the officers to rest on a misunderstanding of the nature of the duties they were asked to perform, the officers had been ordered to rejoin their units and the resignations had been withdrawn. It transpired on the following day that General Gough had carried back to Ireland a memorandum signed by Colonel Seely, Sir John French, Chief of the General Staff, and Sir John S. Ewart, Adjutant-General, explaining the misunderstanding and explicitly stating that while the Government must retain their right to use the Army to maintain law and order, they had "no intention whatever of taking advantage of this right to crush political opposition to the policy or principles of the Home Rule bill." For this guarantee Colonel Seely assumed full responsibility. He explained in the House of Commons on March 25 that he had added it at the request of General Gough to a form of memorandum approved by the Cabinet, and admitting his error, announced that he had resigned as Secretary for War.

Mr. Asquith declined to agree to Colonel Seely's retirement. Nevertheless, he repudiated the guarantee, with the declaration that the Government would never yield to a claim to demand such advance assurances, "which, if allowed, would place the Government and the country at the mercy of the Army." Sir John French and Sir John S. Ewart thereupon resigned their staff appointments. They insisted, in answer to strong pressure to induce them to remain, that the repudiation of their signatures to the War Office memorandum left them no choice, and on the acceptance of the resignations of his colleagues, Colonel Seely withdrew from the Cabinet. On March 27 a new army order was issued forbidding officers to question their inferiors as to their action in the event of being required to obey orders dependent on future or hypothetical contingencies, and forbidding officers or soldiers to ask for assurances as to the orders they may be required to obey. Mr. Asquith announced on March 30 that he would assume the portfolio of War and resigned his seat to seek reëlection.

After this dramatic interlude, during which Ulster remained absolutely passive, the debate on the second reading of the Home Rule bill was resumed in a more conciliatory spirit. Lord Loreburn in the House of Lords on March 31 repeated his plea for a peaceful settlement (*A. Y. B.*, 1913, p. 133). In the House of Commons on the same day Sir Edward Grey urged the resumption of the interparty conferences and suggested the prospect of a satisfactory federal solution during the six years of exclusion offered to Ulster; even if the Government's offer was rejected, he declared, coercion of Ulster was not to be thought of without consulting the country unless it was previously forced by some overt act of rebellion. The bill was read a second time on April 6 by a majority of 80. But on April 17 the standing committee of the Ulster Unionist Council issued a version of the Army crisis which again roused intense party acrimony. It charged the Government with a deliberate plot to bring the crisis to an issue by provoking a premature outbreak in Ulster or to demonstrate that the threat of armed resistance to home rule would instantly vanish before a display of force. On the refusal of Mr. Asquith, who was returned for East Fife on April 8, to grant an impartial inquiry on judicial lines into the military and naval movements against Ulster, the Opposition embodied the demand in a formal motion. But before it was brought to debate the Ulster Volunteers carried out an amazing exploit in defiance of the Government's proclamation against the importation of arms which had a sobering effect on both parties. On the night of April 24 a large part of the Volunteer Force assembled, lined the roads between Belfast, Larne and Bangor, took possession of the landing stages at Larne, Bangor and Donaghade, landed cargoes of 40,000 rifles and 1,000,000 rounds of ammunition, and distributed the arms in automobiles to all parts of the province. Mr. Asquith assured the House of Commons on April 27 that in view of this "grave and unprecedented outrage," immediate steps would be taken to vindicate the authority of the law. A military officer was appointed resident magistrate for Down and Antrim and a naval patrol was established on the Ulster coast; the Government decided, however, not to institute criminal proceedings against individuals.

Again the pendulum swung toward conciliation. But the Government, assuming that the Home Rule bill, even if amended by consent in the Commons, would be again rejected by the House of Lords, determined to press the original measure to enactment under the Parliament Act and subsequently to seek an agreement on the exclusion of Ulster. Accordingly, Mr. Asquith carried on May 12 a motion to dispense with the committee stage of the bill, thus precluding amendment by suggestion as provided in the Parliament Act. For the purpose of the settlement for which he hoped, he proposed to introduce for concerted and coöperative discussion a supplementary amending bill to become law at the same time as the Home Rule Act. The Opposition, forced to concur in this procedure, vainly demanded the terms of the amending measure before proceeding with the debate on the third reading of the Home Rule

bill. After a turbulent scene in the House of Commons on May 21, Mr. Asquith was induced by the Speaker to give some further intimation of the intentions of the Government. He declared that the amending bill, which would be introduced in the House of Lords, would embody the substance of his offer of temporary exclusion of Ulster unless some other basis of agreement was reached before its introduction. The Opposition thereupon withdrew from the debate, and the bill was passed a third time on May 25 by a majority of 77.

Interparty conferences during the Whitsuntide recess left the situation unaltered, and an amending bill drawn on the principle defined by the Prime Minister, with provisions for the interim administration of the excluded area, was introduced in the House of Lords on June 23. Lord Crewe assured the Unionists that the Government was prepared to give careful consideration to the amendments of the House of Lords, for which the bill offered the widest possible latitude. Lord Lansdowne on July 1 admonished the Lords of their responsibility for dealing with the great Irish question with courage and sympathy and affirmed that, despite the meshes of the Parliament Act, they could not fall back on a mere policy of negation and destructive criticism. Accordingly, the Lords passed the amending bill on second reading by a majority of 273 to 10, and then proceeded to transform it in committee into an instrument of absolute and unlimited exclusion. Lord Lansdowne's fundamental amendment exempting the entire province from the operation of the Home Rule bill was adopted on July 8 by a vote of 138 to 39, and on the following day the bill was further amended to remove the Unionists of the South and West of Ireland from the jurisdiction of the Irish judiciary and to withdraw the administration of the Land Purchase Acts and the Royal Irish Constabulary from the control of the Irish Government. To protect the Unionist minority under the Irish Parliament the Lords added a provision for proportional representation, and at the last moment inserted a clause authorizing the King by order in council to suspend the operation of the Home Rule bill until a commission had reported on the constitutional relations of Ireland to other parts of the United Kingdom. On July 14 the House of Lords passed the amending bill without a division.

Meanwhile the state of feeling in Ireland failed to reflect the efforts toward compromise in Parliament. The Ulster Protestants, firmly opposed to the plan of limited exclusion, regarded the Government's procedure with suspicion, and continued the smuggling of arms and munitions of war in defiance of proclamation and patrol. The Nationalists, equally suspicious of the Government's conciliatory overtures, pressed the organization of their rival military force, the National Volunteers. This movement, after languishing for many months, was given an impetus by the formal endorsement of the Nationalist party in April which carried the National Volunteers to an enlistment of about 110,000 by the end of May. In June the Nationalist party usurped the leadership of the Volunteer organization and Mr. Redmond proceeded to put it on a war footing. A large fund, swelled by substantial contributions from America, was collected for the purchase of arms and equipment, and the gun-running in the South soon began to rival the exploits of the Ulster Volunteers. The two forces were equally earnest, equally unyielding, and equally convinced of the imminence of armed conflict.

In these circumstances King George took the initiative in summoning a conference of party leaders, under the chairmanship of Speaker Lowther, to whom he committed the Irish question as trustees for the honor and peace of the Empire; they were Mr. Asquith and Mr. Lloyd George for the Government, Mr. Bonar Law and Lord Lansdowne for the Opposition, Mr. Redmond and Mr. Dillon for the Nationalists, and Sir Edward Carson and Captain Craig for the Ulster Unionists. At the opening of the conference on July 21, the King justified his intervention by his deep misgiving over the course of events in Ireland; for months, he said, the trend had been surely and steadily towards an appeal to force, and now the cry of civil war was on the lips of the most respon-

sible and sober-minded of the people. This passage of the King's speech was violently attacked by the Radical press and his unprecedented action was protested by the Labor members and a section of the Liberal party as an interference with the supremacy of Parliament. Mr. Asquith rebuked the attack on the Crown by the acceptance of full responsibility for the King's speech and the declaration that the King had acted throughout in accordance with the strictest constitutional precedents. The conference considered for four days the possibility of defining an area to be excluded from the operation of the Home Rule bill but failed to reach an agreement either in principle or in detail.

The adjournment of the conference on July 24 apparently closed the last avenue to conciliation. Two days later a new strain was added to the tense situation by a clash between the military and the National Volunteers in Dublin. On July 26 a body of several hundred Volunteers landed from a yacht in Howth harbor a cargo of some 3,000 rifles. A battalion of the King's Own Scottish Borderers and a force of police intercepted them in their march to Dublin and attempted to seize their arms. The Volunteers resisted and in the mêlée two soldiers, a policeman and three Volunteers were killed. On their return to Dublin the troops were stoned by a mob and some of them fired without orders on the crowd, killing three and wounding 32 persons. The contrast between this tragedy and the leniency shown the Ulster Volunteers who openly paraded with smuggled arms roused the Nationalists to fury, and Mr. Redmond called upon the Government on July 27 for definite and drastic steps in satisfaction of the action of the troops. But on the following day Austria's declaration of war against Servia initiated the conflict into which England was drawn a week later. Domestic controversy was suspended that England might present a united front to the world. On July 30, by unanimous consent of all parties, the House of Commons adjourned debate on the amending bill without day. Mr. Redmond declared in the House of Commons on Aug. 3 that the Government might withdraw all the regular troops from Ireland and leave the defense of the island to the combined forces of Volunteers of the North and South, and Sir Edward Carson on the declaration of war made a definite offer to the War Office for the utilization of the Ulster Volunteers. On Sept. 15 Mr. Asquith introduced a special bill providing for the immediate enactment of the Home Rule and Welsh Disestablishment bills and suspending their operation for a year; at the same time he pledged the Government and the Irish party to introduce an amending bill to satisfy the demands of Ulster. The bill was passed by the House at once, the Unionists refraining from voting, and on Sept. 18, the day of the prorogation of Parliament, the signature of King George placed the two measures on the statute book.

The Welsh Church and Plural Voting Bills.—The bill for the disestablishment and partial disendowment of the Church of England in Wales was introduced a third time in the House of Commons on March 5. Under the procedure adopted for the Home Rule bill on May 12 (see *supra*), the committee stage was omitted, and the bill was passed unamended on third reading on May 19 by a vote of 328 to 251. The measure became law on Sept. 18, but its operation was postponed for a year, as in the case of the Home Rule bill. The Plural Voting bill was rejected by the House of Lords a third time on July 15 by a vote of 119 to 49, and thus became the first measure to be enacted under the Parliament Act.

The Cabinet.—Several changes in the Cabinet followed the retirement in February of Sydney Buxton, President of the Board of Trade, appointed Governor-General of the Union of South Africa in succession to Viscount Gladstone (see *The Colonies, infra*) and raised to the peerage in April with the title of Viscount Buxton of Newtimber. John Burns, President of the Local Government Board, became President of the Board of Trade; Herbert Samuel, Postmaster-General, became President of the Local Government Board; Charles Hobhouse, Chancellor of the Duchy of Lancaster, became Postmaster-General; and C. F. G. Masterman, Secretary to the Treas-

ury and chairman of the National Health Insurance Joint Commission, entered the Cabinet as Chancellor of the Duchy of Lancaster. Mr. Masterman was defeated for reëlection from his constituency of Southwest Bethnal Green by a small Unionist majority, and was again defeated in another Unionist gain at Ipswich on May 23.

Col. John Seely, Secretary of State for War, resigned on March 30 in consequence of the Irish Army crisis. Premier Asquith assumed the portfolio and was returned unopposed from East Fife on April 8. On the entry of Great Britain into the European War Mr. Asquith resigned the portfolio and Lord Kitchener succeeded him on Aug. 5. At the same time Lord Morley, Lord President of the Council, and John Burns resigned from the Cabinet. Earl Beauchamp became Lord President of the Council, and Walter Runciman, President of the Board of Trade, while Mr. Runciman was succeeded as President of the Board of Agriculture by Lord Lucas.

Woman Suffrage.—The campaign of the militant suffragists during the early months of the year was directed chiefly against the historic monuments and art treasures of the country. Several old and important churches were destroyed by fire or damaged by suffragist bombs. On March 10, a suffragist mutilated the famous Rokeby Velasquez, "Venus with the Mirror," in the National Gallery, and another slashed Sargent's portrait of Henry James in the Royal Academy exhibition on May 4; as a result all public galleries and other show places in London were closed during the height of the tourist season. The House of Lords on May 6 defeated by a vote of 104 to 66 a bill introduced by Lord Selborne conferring the Parliamentary franchise on women who possess municipal suffrage, a measure affecting about a million women. The resentment of the militants at this defeat led to a series of insults to the King, including a riot before Buckingham Palace on May 21 in which over 50 arrests were made, and an attempt on June 11 to blow up the Coronation Chair in Westminster Abbey. These outrages forced the Government to take sterner measures for the repression of militancy. The headquarters of the Women's Social and Political Union was raided by the police, and the Government proposed to make subscribers to its funds individually liable for damage to persons and property and to punish them criminally. At the same time they proposed to continue the Cat and Mouse Act in operation. Mr. McKenna informed the House of Commons on June 11 that up to that date 83 prisoners had been released under the Act; 15 had given up militancy, six had fled the country, 20 were in hiding, and the rest were liable to arrest if they left their homes. On July 7, the publisher of the *Suffragette*, the organ of the Women's Social and Political Union, was sentenced to two months' imprisonment for incitement to destroy property, the first successful prosecution under the Government's new plan. On the entry of Great Britain into the European War the militants declared a truce and further prosecutions have been suspended.

Commerce.—The increase in the foreign trade of the United Kingdom continued during 1913, but the remarkable acceleration of 1912 (*A. Y. B.*, 1913, p. 135) was not maintained and a distinct slackening of the rate was apparent at the end of the year. The total turnover reached the new high record of £1,404,151,093, compared with £1,344,168,421 in 1912 and £1,237,035,954 in 1911. Imports were valued at £769,033,959, an increase over the preceding year of £24,393,328, or 3.2 per cent., mainly in foodstuffs and manufactured goods. Domestic exports totaled £525,461,416, an increase of £38,237,977, or 7.8 per cent., two-thirds of which was in manufactures. Reëxports of foreign and colonial products declined to £109,655,718, a decrease of £2,081,973, or 1.8 per cent. Imports from the colonies increased from £186,053,000 to £191,579,000, and colonial exports from £177,060,000 to £195,309,000. Great Britain purchased most largely from the United States, the imports increasing from £134,579,000 to £141,706,000; Germany and France were second and third. The largest purchaser was Germany, which took in both 1912 and 1913 slightly over £40,000,000 of British goods; the United States was second and France

third. Argentina was fourth in both purchases and sales.

During the first six months of 1914 both imports and exports declined slightly from the record of the same period in 1913, imports from £378,746,000 to £375,883,290, and domestic exports from £257,055,808 to £257,457,611. In July imports were £59,383,792 and domestic exports £44,405,380. In August, in consequence of the war, imports dropped to £42,362,000 and exports to £24,211,000. September showed a slight improvement; imports were £45,424,864 and exports £26,674,101. In October imports increased to £51,559,289 and exports to £28,601,815, with £7,179,857 of reëxports against £2,376,287 in September.

Finance.—The revenue for the fiscal year ended March 31 was £198,243,000, an increase of £9,441,000 over the preceding year and £3,418,000 in excess of the estimates. The expenditure during the year was £197,493,000, £1,518,000 less than the final estimates, leaving a surplus of £750,000.

Lloyd George's sixth budget, submitted to Parliament on May 4, estimated the revenue from existing sources during the fiscal year 1914-15 at £200,655,000. On the basis of existing obligations it estimated expenditure at £205,985,000, most of the increase being attributable to Mr. Churchill's naval programme (see *infra*). To this was added new projects of expenditure which brought the total budget to £210,455,000. Among these the chief item was additional grants to local authorities for the relief of rates. As an essential part of this scheme the Government proposed to establish a national system of valuation for local taxation, based on the separation of the site from the improvements; to make the taxation of site values a principle of local rating; and to apply the additional aid to the reduction of the rates on improvements. The total of the proposed new grants to local authorities, for roads, police, poor relief, public health, etc., was £12,045,800, of which £2,432,000 was assigned to the fiscal year 1914-15. The remaining items of the budget were new expenditures on education, including technical, secondary and higher institutions, the feeding of poor children, physical training and open-air schools, and an additional contribution of £1,250,000 to the national-insurance system.

The deficit of £9,800,000 Mr. Lloyd George proposed to meet by reducing the sinking-fund charge by £1,000,000 and increasing the income tax, supertax and death duties. On unearned incomes over £500 the tax was raised from 1s. 2d. to 1s. 4d. in the pound. On earned incomes the rates were changed from 9d. on incomes under £2,000, 1s. on incomes of £2,000 to £3,000 and 1s. 2d. on incomes over £3,000 to a new scale rising from 9d. on incomes under £1,000 to 1s. 4d. on incomes over £2,500. Instead of a supertax of 6d. in the pound on incomes of more than £5,000 with £3,000 exempt, the new schedule levied a supertax rising from 5d. in the pound on incomes of £3,000 with £2,500 exempt by increments of 2d. for each additional £1,000 to a maximum of 1s. 4d. The scale of death duties on estates above £60,000 was revised to raise the maximum levy to 20 instead of 15 per cent., on estates above £1,000,000. The estimated additional yield of the revised taxes was £5,500,000 from the income tax, £2,500,000 from the supertax and £800,000 from the death duties. Subsequently a few modifications were introduced in the income-tax schedule: on unearned incomes between £300 and £500 the tax was restored to 1s. 2d., and on incomes below £300 it was reduced to 1s. The radical Liberals insisted that the principle of the proposed grants to local authorities be defined and approved before the levy of taxes to provide the money. The Government was forced by this revolt to abandon their proposed temporary grants, and the tax on higher incomes was consequently reduced to 1s. 3d. On the second reading of the Finance bill the Government's majority fell to 38, and on July 7 Mr. Asquith secured a majority of only 23 on a motion to closure the debate on the third reading.

The Navy.—A supplementary estimate of £2,500,000 for naval expenditure during the fiscal year ended March 31, 1914, was submitted to Parliament late in February, bringing the total budget for the year to £48,809,300. The chief items were £260,000 for the construction of eight airships,

£500,000 to increase the reserve of fuel oil, £450,000 to cover the acceleration of the building programme of 1913-14 decided upon after the defeat of the Canadian naval bill (*A. Y. B.*, 1913, p. 135), and £1,000,000 to meet unexpected progress by contractors on the construction of ships authorized by Parliament.

Mr. Churchill submitted the estimates for 1914-15 on March 17. They called for an expenditure of £51,550,000, an increase of £5,240,700 over the estimates for the preceding year and of £2,740,700 over the actual expenditure, chiefly in the directions indicated by the supplementary estimate. The programme provided for an increase of 5,000 in personnel, raising the total strength of the naval service to 151,000 officers and men, and the construction of four battleships, four light cruisers, 12 destroyers, and a number of subsidiary craft. The building programme for the preceding year was five battleships, eight light cruisers and 16 destroyers, besides subsidiary craft. The construction of three of the battleships of this programme was accelerated to supply the deficiency of the expected Canadian contribution, and Mr. Churchill promised that two ships of the 1914 programme would be advanced for the same purpose. As to British policy in the Mediterranean, in which France assumed sole guardianship of the interests of the Triple Entente in 1912 (*A. Y. B.*, 1912, p. 88), Mr. Churchill announced that the Government had decided to resume independent guardianship of British interests, and proposed to place in the Mediterranean by the end of 1915 a battle squadron, based on Malta, of eight first-class battleships, four armored cruisers, four light cruisers and 16 destroyers. The ships under construction by the Admiralty on April 1 comprised 13 battleships, one battle cruiser, 16 light cruisers, 30 destroyers, 24 submarines, and a number of service vessels.

The Army.—A supplementary estimate of £296,000 for expenditure on the Army during the fiscal year ending on March 31, of which £266,000 was expended on aeroplanes, brought the total budget for the year 1914 to £28,516,000. The estimates for the fiscal year 1915, submitted to Parliament by Colonel Seely on March 5, forecasted an expenditure of £28,845,000. Of the increase a large part was assigned to the development of the air service, the estimate for this arm reaching a total of £1,000,000. The total regular establishment provided for the home army was 186,400 officers and men, an increase of 800. The total establishment of the regular army, army reserve, special reserve and territorial forces, home and colonial, was fixed at 803,128 officers and men. The relation between the establishment and the effectives of all ranks on Jan. 1, 1914, was reported as follows:

	Establishment	Effectives
Regular forces, home and colonial	168,500	156,110
Regular forces in India	75,896	78,476
Army reserve	147,000	146,756
Special reserve	80,120	63,089
Territorial forces	315,485	251,706

The War in Great Britain.—The events leading up to the entry of Great Britain into the European War are described on another page (see III, *International Relations*). It is necessary here only to record very briefly the few notable incidents of internal history during the last five months of the war.

On the morning of Tuesday, Aug. 4, Mr. Asquith laid before the House of Commons the facts of the British ultimatum to Germany and issued a royal proclamation for the complete mobilization of the army. At 11 o'clock the same evening Great Britain declared war. Lord Kitchener was appointed Secretary of State for War on the following day, and on the 6th Parliament unanimously granted the Government a war credit of £100,000,000, for which Treasury bills were issued, and sanctioned an increase in the army of 500,000 men. Lord Kitchener issued his first call for 100,000 men on Aug. 7, and a second call for the same number three weeks later. On Sept. 10 Parliament voted a further increase in the army of 500,000 men.

Parliament was prorogued on Sept. 18 and a new session was opened on Nov. 11. A new war credit of £350,-

000,000 was voted unanimously on the 16th. The loan was issued at 95 and bears interest at 3½ per cent.; it was largely over-subscribed. On Nov. 20 Parliament passed a vote for an additional army of 1,000,000 men. To meet the loss of revenue Lloyd George introduced a special war budget on Nov. 17 which doubled the income tax (see *supra*) and imposed special duties on beer and tea. The war expenditure to the end of the fiscal year on March 31, 1915, is estimated at £328,443,000, and the net deficit for the year at £321,321,000.

The financial crisis in which London was involved even before the entry of Great Britain into the war is noted on another page, in connection with its reaction on the United States (see I, *American History*). To check the drain of gold to the Continent the London Stock Exchange was closed on July 31 and simultaneously the Bank of England raised its rate to eight and later to ten per cent. On the declaration of war on Germany the Government took prompt action to protect finance and trade. The bank holiday of Aug. 3 was extended to the 7th, and the Bank of England was authorized to issue notes in denominations of £1 and 10s. to preserve the stock of gold for national use. Parliament on Aug. 3 passed a bill empowering the Government to declare a general moratorium. It was applied the following day to bills of exchange other than cheques or demand notes, and on the 7th extended to settlements of indebtedness generally, except wages, salaries, taxes, government payments and insurance. Even before war was declared the Government established a state system of war-risk marine insurance. The effect of these and other measures on the financial crisis was immediate. Within a fortnight a condition of distinct ease was restored to the financial markets, and on Aug. 20 the Government floated £15,000,000 in Treasury bills on an exceptionally favorable basis. The moratorium was extended on Sept. 4 and again, with modifications, on Oct. 4; it was terminated altogether on Nov. 4.

One of the conspicuous features of the war has been the solidarity of the British Empire. German statecraft apparently counted confidently on the Irish crisis and the alleged disaffection of the Indian subjects to restrain or at least hamper Great Britain. At the first sign of external danger political strife in the United Kingdom immediately ceased. All the ruling Indian chiefs at once offered their entire military and financial resources for the service of the Empire. The entry of Turkey into the war on the side of Germany was expected to arouse the Mussulman subjects against the Christian yoke, but India and Egypt have failed to respond even to the proclamation of a holy war. Two small revolts in South Africa, which failed to attract substantial support and were easily suppressed (see *The European War, infra*), have been the sum of the Empire's internal embarrassments. On the other hand, all the five self-governing dominions have contributed largely and constantly to the resources of the Mother Country in men and supplies. Canada has sent one contingent of about 35,000 men, Australia and New Zealand forces of 20,000 each, while South Africa has raised a defense force to release Imperial troops stationed in the colony.

THE COLONIES

Australia.—A Liberal Government under Joseph Cook, leader of the party in the Commonwealth House of Representatives, assumed office in Australia after the elections of June 30, 1913 (*A. Y. B.*, 1913, p. 139). The Ministry had a majority of one in the House, but the Labor party controlled the Senate by a majority of 22. In these hopeless circumstances Mr. Cook deliberately adopted the policy of forcing a dissolution of Parliament, under the clause of the Commonwealth Act which empowers the Governor-General to dissolve both houses if the Senate twice rejects a measure passed twice, at an interval of at least three months, by the lower house. In the bitter and turbulent session of 1913 Mr. Cook passed through the House two bills which the Labor majority in the Senate could not accept, one prohibiting a preference to trade unionists in government employment, and the other restoring the system of postal voting.

Both were rejected by the Senate. They were again passed by the House in the session of 1914 and rejected by the Senate a second time early in June. At the request of the Ministry, the Governor-General dissolved Parliament, and the Liberals appealed to the country on a platform which proposed, among other reforms, constitutional amendments giving adequate powers of control over combinations and monopolies, creating an interstate wages board with an appellate industrial tribunal, and providing for the election of the Senate on the basis of proportional representation and of the House of Representatives by preferential voting. In the election of Sept. 5, however, the Labor party carried the House by a majority of seven and increased its majority in the Senate. Mr. Fisher, Premier from 1910 to 1913, again heads a Labor Ministry, elected by the party, in which the portfolios are distributed as follows: Treasurer, Mr. Fisher; Attorney-General, W. M. Hughes, Defense, G. F. Pearce; Customs, F. Tudor; External Affairs, J. Arthur; Home Affairs, W. O. Archibald; Postmaster-General, W. G. Spence; Vice-President of the Council, Senator Gardiner; without portfolio, H. Mahon, J. Jensen, E. J. Russell.

Lord Denman, Governor-General of Australia, resigned because of ill-health in May. He was succeeded by Sir Ronald Craufurd Munro-Ferguson.

Egypt.—Lord Kitchener's third report, published late in May, continued the chronicle of tranquil progress during 1913. The elections to the new Legislative Assembly (*A. Y. B.*, 1913, p. 140) fully justified the extension of representative institutions. Sanitation was much improved by scientific studies of special diseases peculiar to Egypt and attention to the drainage and water supply of villages. The Nile flood was abnormally low. The great dam at Assouan stored enough water to mature the cotton crop, but the southern portion of the Nile valley suffered severely from drought. The low flood was followed by a serious shortage of water in the river, which reached the lowest stage recorded in over a century. Only enough water was available in the spring of 1914 to irrigate the new planting of cotton; rice culture had to be abandoned altogether. Lord Kitchener proposed to increase the supply of water for early summer use by damming the White Nile at a point near Gebel Auli and suggested the ultimate regulation of the river at its source in the great lakes. Receipts during the year amounted to £E17,703,898, and expenditures to £E17,659,961. The Sudan, in spite of the low Nile, paid its way and the area under cultivation to cotton increased under the encouragement of the new loan of £3,000,000 guaranteed by the Imperial Government.

The fiscal year of the Egyptian Government, hitherto coincident with the calendar year, was changed to run from April 1 to March 31. An interim budget for the first three months of the year, promulgated by the Council of Ministers, estimated receipts at £E3,650,000 and expenditures at £E3,495,000.

The new Legislative Assembly established in 1913 (*A. Y. B.*, 1913, p. 140) was inaugurated on Jan. 22. The work of the first session fully justified the grant of an additional measure of self-government. On the entry of Turkey into the European War on the side of Germany, martial law was proclaimed throughout Egypt as a precaution against possible outbreaks of religious fanaticism, but the country has remained tranquil. Abbas Hilmi, the Khedive, who was in Constantinople when war was declared, espoused the Turkish cause. By a momentous proclamation of Dec. 18, Egypt was declared a British protectorate and permanently removed from Turkish suzerainty. At the same time Prince Hussein Kemal, uncle of Abbas Hilmi, was proclaimed Sultan. British interests are in charge of a High Commissioner, Col. Sir Arthur Henry MacMahon.

South Africa.—The policy of the South African Government on immigration from British India created a situation late in 1913 which raised in an acute form the question of the imperial rights inhering in British citizenship and the extent of imperial authority over the self-governing colonies. The ill-treatment of Indians by the South African Republic was one of the accessory causes of the

Boer War. After the war free and indentured Indian laborers came into the South African colonies in such numbers that severely restrictive legislation was enacted in 1907, which limited the right of entry and residence of Indians to the sub-tropical colony of Natal, denied them the right of free circulation in the other colonies, and imposed an annual tax of £3 on unindentured and time-expired laborers. Permanent colonization has always been the policy of the Indian Government in permitting the emigration of indentured laborers and likewise the aim of the emigrants. Accordingly, the restrictions of the law of 1907 were opposed by passive resistance so thoroughly organized that the South African Government was constrained to seek a compromise with the Indian leaders. A provisional settlement was reached in 1911, whereby the act of 1907 was to be immediately repealed and the racial bar inhibited from any future legislation. But the Immigrants' Regulation Act of 1913, which was expected to enact the promised reforms, not only retained the £3 tax, to which the Indians particularly objected as designed to force them to reindenture themselves or leave the country, but imposed new disabilities involving the validity of marriages under native rites. Passive resistance was again organized among the 150,000 Indians in Natal, about half of whom are free laborers, and as the Government adopted rigorous measures to enforce the law, strikes accompanied by rioting occurred at many places in the coal-mining districts and on the cotton and sugar plantations. By the beginning of November, 1913, the jail accommodations of Natal were exhausted and hundreds of Indians were imprisoned in mining compounds.

Gandhi, the Indian leader, heading a band of 2,000 Indians which attempted to enter the Transvaal on a march of protest, was arrested and condemned on Nov. 14 to a year's imprisonment on the charge of inducing indentured laborers to leave Natal. The indignation aroused in India by the imprisonment of Gandhi, aggravated by reports of oppression of the strikers, brought into prominence the imperial aspects of the South African situation. Lord Hardinge, the Viceroy, speaking for the people of India, urged upon the Imperial and South African Governments the necessity of an impartial inquiry. Lord Crewe, the Secretary of State for India, and other members of the Imperial Parliament associated themselves with this desire, and the proposal had an immediate mollifying effect in India and Natal. While public opinion in South Africa expressed the strongest resentment at the least suggestion of imperial encroachment on the colony's right of self-government, it was not averse to an investigation of the Indian question by competent local authority on the restoration of normal conditions in Natal. Accordingly, on Dec. 11, 1913, the Government appointed a commission of three members, headed by Sir William Solomon, a justice of the Supreme Court, to inquire into the causes and circumstances of the strike, undertaking at the same time to release the imprisoned passive resisters.

The commission reported to Parliament on March 17. It recommended the abolition of the £3 tax, the removal of many of the administrative irritations under the Immigration Act, and a settlement of the marriage difficulty by provision for the admission of one wife from India and the validation of monogamous Indian marriages in South Africa. The Indian Government at once accepted the recommendations of the commission as complete and satisfactory. They were embodied in a bill introduced in the South African Parliament late in May, which was signed by the Governor-General on July 2. (See also Canada, *supra.*)

A general strike proclaimed in January by the Federation of Trades brought the long syndicalist campaign in South Africa to a decisive issue. The efforts of the Federation to induce the employees of the government railways to join a general strike movement in the premature crisis of 1913 (*A. Y. B.*, 1913, p. 141) were defeated by the appointment of a special commission to consider the demands of the railwaymen for the establishment of a minimum wage and higher rates for overtime, the abolition of piecework, and the limitation

of apprenticeship. But in October, 1913, the Government created a new grievance by inaugurating a policy of retrenchment in the railway shops, to offset a steady decline in operating revenue. Threats and persuasion failing to secure a reversal of this policy and the reinstatement of the dismissed employees, the executive of the Railway Union, on the strength of a favorable vote in the Pretoria branch, declared a strike on Jan. 8. The railway unionists of Cape Colony and Natal repudiated the decision of the leaders in the Transvaal. But the Federation of Trades at Johannesburg, assuming control on Jan. 9, extended the strike over the entire railway service of the Transvaal and Orange River Colony, and, seizing the opportunity for a decisive trial of strength with the Government, proclaimed on the 13th a general strike throughout the two states.

The Government met the crisis with prompt and energetic measures. On the second day of the railway strike the leading agitators were arrested on charges of seditious utterance; the sale and transportation of arms were prohibited by proclamation; and orders were issued for the mobilization and distribution of a force of 70,000 militia in the affected areas. On the issue of the general strike order on the 13th, martial law was proclaimed in the principal districts of the Transvaal, Orange Free State and Natal. The struggle was brief and bloodless. The strike movement was not strong enough to survive the arrest of the leaders of the Federation in Johannesburg on Jan. 15, after a four-days' siege of the Trades Hall. From that date the strikers abandoned the struggle and on the 21st the general strike was declared at an end.

To confirm its victory the Government adopted the drastic policy of deporting the authors of the strike. On Jan. 27 nine of the leaders of the Federation of Trades and its agents in the Railway Union in custody at Johannesburg were conveyed without trial to Durban and placed on board a steamer bound for England. This rigorous act created a profound sensation in South Africa and in England, where the exiles were received on their arrival on Feb. 24 with great labor demonstrations of sympathy and protest. An indemnity bill, to legalize retrospectively the deportations and other specific acts committed under martial law, was the chief issue of the session of the Union Parliament which opened on Jan. 30. The Government defended the deportations without trial by demonstrating the existence of a syndicalist plot to set up an "industrial republic" through the agency of a general strike aided by an insurrection of the 200,000 native laborers on the Rand. They were attacked on constitutional grounds in the South African Parliament, and a resolution to reserve the signature of the indemnity bill was offered in the Imperial Parliament by Ramsay MacDonald on Feb. 12. The House of Commons, however, declined by a vote of 214 to 50 to interfere, and on March 18 the South African Parliament passed the bill by an overwhelming majority. The elections to the Transvaal Provincial Council on the following day supplied an index to the state of public opinion on the Government's policy; in 25 contests in the urban areas of the Rand and Pretoria the Labor party secured 23 seats, a majority of ten over the Nationalists and Unionists in the Council. In the other provincial elections Labor won important successes in the urban centers. On the same day a Labor candidate carried a by-election in Cape Colony by an immense majority, the first Labor member to be elected from the province.

During the fiscal year ended March 31 revenue amounted to £15,794,000 and expenditure to £16,481,000. Of the deficit of £687,000, a third less than the estimate (*A. Y. B.*, 1913, p. 142), all but £24,000 was extinguished by the unexpended surplus of 1910-11. The budget for 1914-15 estimated total revenue at £15,957,000 and expenditure at £16,668,000. To meet the growing expenditure General Smuts submitted on April 24 the Union's first effort at constructive finance. The Government proposed to obtain some additional revenue by certain alterations of the import duties, but declared that any readjustment of the tariff must be based on the principles that the cost of living must not be

increased and that the primary industries rather than manufactures must be developed. Direct taxation was adopted as a settled policy. General Smuts' programme comprised, first, a graduated tax on incomes above £1,000, rising from 2.5 per cent. to 7.5 per cent. on incomes above £24,000, estimated to yield £450,000; and second, a tax on unimproved land not beneficially occupied, the latter limited to one year. Eventually, however, the proposed land tax was dropped.

In spite of the labor troubles and monetary stringency of 1913, foreign trade steadily advanced. Imports were valued at £44,642,608, an increase of £3,118,415 over 1912; while exports increased by £3,948,347 to the record figure of £69,014,073. Of the imports £22,141,489, 54.9 per cent., came from the United Kingdom. The chief articles of export were gold, valued at £40,476,600, and diamonds, valued at £12,019,763.

Viscount Gladstone, first Governor-General of the Union of South Africa, appointed in 1910, resigned in July. He was succeeded by Viscount Buxton, President of the Board of Trade in the Asquith Cabinet (see also *The United Kingdom, supra*).

CONTINENTAL EUROPE

FRANCE

The Caillaux Budget.—French politics during the early months of the year was concerned almost exclusively with problems of finance. The budget for 1914 which contributed to the fall of the Barthou Ministry late in 1913 (*A. Y. B.*, 1913, p. 143) anticipated a deficit of $158,800,000; besides, there remained to be provided $172,000,000 to cover the cost of the reorganization of the Army (*ibid.*) and $88,000,000 to carry out the naval programme adopted in 1912 (*A. Y. B.*, 1912, p. 135). The Doumergue Cabinet submitted a revised programme to the Chamber on Jan. 13. By transferring the Morocco expenditure to a separate account and effecting various economies, Joseph Caillaux, the Minister of Finance, designed to reduce the deficit in the ordinary budget to $33,600,000, to be covered by an issue of short-term bonds; this forecast, however, was subsequently increased to $60,400,000, the final estimate of revenue being $957,800,000, and of expenditure, $1,018,200,000. M. Caillaux submitted also a new fiscal policy, designed to secure economy and elasticity in future budgets by a radical reform of taxation. He proposed the introduction of a graduated tax on incomes above $400, and an annual tax on capital, beginning at 0.05 per cent. on fortunes above an exemption limit of $6,000 with a further allowance of $1,000 for each dependent, and rising to 0.25 per cent. on fortunes of $2,000,000. From the income tax he anticipated an annual yield of $30,000,000, and from the tax on capital $38,000,000 the first year, and on this additional revenue, with a few millions from other new taxation, he relied to balance the 1915 and subsequent budgets. The extraordinary military budget M. Caillaux estimated much higher than the Barthou Ministry: the increase in the effective peace strength at $131,000,000, and the increase in *materiel*, including expenditure on strategic railways and fortifications, at $151,000,000. These sums, together with $88,000,000 for the Navy, M. Caillaux proposed to secure by four or five rapidly redeemable loans to be issued at intervals during 1914 and 1915.

M. Caillaux was not able to carry out any part of his scheme. His taxation proposals appealed only to the radicals. The propertied classes denounced the tax on capital as confiscatory, while the Senate opposed the inquisitorial features of the income tax and rejected altogether the taxation of income from *rente* insisted upon by the Chamber. The Assembly delayed action on the budget, voting only provisional twelfths, and to finance the Government M. Caillaux had to resort to the issue of Treasury bonds and other temporary expedients. He was at the same time the object of bitter political attack, which his wife sought finally to avenge by the murder of his chief assailant. On March 17, the day following this tragedy, M. Caillaux resigned.

The Murder of Gaston Calmette.—Gaston Calmette, editor of the *Figaro*, a newspaper of reactionary tendencies, began in the issue of Jan. 8 a series of savage personal attacks on M. Caillaux, accusing him, with more or less support from documentary evidence, of political trickery and corruption. Finally, the *Figaro* of March 13 published in facsimile a letter written by M. Caillaux in 1901, when he was Minister of Finance in the Waldeck-Rousseau Cabinet, in which he claimed to have killed the movement for an income tax while pretending to support it. His correspondent was assumed to be Mme. Rainouard, who became his wife in 1911, but who was in 1901 undivorced from her first husband. On March 16 Mme. Caillaux secured an appointment with M. Calmette in the offices of the *Figaro* and shot him to death.

The assassination created a profound political agitation, in which the Doumergue Ministry barely escaped overthrow. The Cabinet was reorganized on the resignation of M. Caillaux on March 17. René Renoult, Minister of the Interior, assumed the portfolio of Finance; Louis J. Malvy, Minister of Commerce, became Minister of the Interior; and Raoul Peret, Under-Secretary of the Interior, entered the Cabinet as Minister of Commerce. Later in the day M. Barthou read in the Chamber a document found on the body of M. Calmette, which accused M. Caillaux, over the signature of Victor Fabre, Procurator-General, of having exerted powerful influence in 1911, through Ernest Monis, then Premier, to postpone the trial of Henri Rochette, a promoter of fraudulent concerns, and of conniving at his escape while on bail. The Assembly directed an inquiry into the Rochette scandal, and under pressure from his colleagues in the Cabinet, M. Monis resigned the portfolio of Marine, which was assumed by Senator Gauthier. The official investigation established the substantial accuracy of the Fabre charges, and out of the inquiry none of the parties emerged with a clean record. M. Barthou and M. Briand were rebuked for concealment of the scandal; M. Caillaux and M. Monis were censured. The revelations of financial and judicial corruption intensified a growing disgust with the proceedings of the National Assembly which obscured the national issues of the electoral campaign. M. Briand's comparative innocence gave his followers a momentary prestige, but the electorate generally viewed the approaching national elections with apathy, concerned only with personal and local questions.

The Elections.—The Chamber was dissolved with the budget still unpassed. The first ballots on April 26 returned 344 Deputies, among them M. Caillaux. There was no sign of the predicted wave of patriotic indignation which was to have swept away the Radicals. On the contrary, the results of the first ballots indicated little change in the composition of the Chamber. The Socialists, standing for a return to two years' military service, gained five seats, the only party to make any definite progress. Through an alliance with the Radicals the Socialists made a further gain of 31 seats in the second ballots on May 10. The final result, with the corresponding figures in the last Chamber, was as follows: Unified Socialists, 103 (67); Socialist Independents, 33 (42); Extreme Radicals, 174 (175); Radical Socialists, 80 (90); Republicans of the Left, 73 (77); Progressives, 69 (83); Liberals, 34 (34); Conservatives, 34 (29). Thus the only party which advocated unreservedly a pacific foreign policy and moderation in expenditure on armaments gained the only conspicuous success. The Briandist Liberals, from whom much was expected, accomplished nothing. In the new Chamber the Socialists and the parties of the extreme Left formed a compact block of some 270 members, apparently united in opposition, not only to the reactionary groups, but also to the moderate radicals and the Center, who formed part of the governing majority in the ministries of Poincaré, Briand and Barthou.

The Viviani Ministry.—M. Doumergue, however, was not prepared to purchase the support of the extreme Left by a definite declaration against the three-years' service law. In the new grouping of parties his ability to

control a majority in the Chamber was doubtful. Accordingly, he declared his immediate task fulfilled with the election of a Chamber of Deputies of more pronounced radicalism than its predecessor, and on June 1, the opening day of the new session, the Cabinet resigned. President Poincaré first offered the Premiership to René Viviani, the Socialist Minister of Public Instruction in the Doumergue Cabinet, whose attempt to form a Ministry after nearly succeeding was defeated by the uncompromising attitude of the Extreme Radicals, who demanded immediate preparations for a return to two-years' military service. The veteran Alexandre Ribot then assumed the task. With some difficulty he succeeded in forming from the moderate groups a strong Cabinet which included Théophile Delcassé as Minister of War; León Bourgeois as Minister of Foreign Affairs, and M. Clémentel, the reporter for the budget in the Chamber, as Minister of Finance. M. Ribot declared the adherence of his Government to the three-years' service law, and the Ministry was defeated in the Chamber by a majority of 44 on June 12, after holding office a single day, an event unprecedented even in France. On the following day M. Viviani made a second and successful effort, and completed a Cabinet in which the portfolios were distributed as follows: Foreign Affairs, M. Viviani; Justice, M. Bienvenu-Martin; Interior, M. Malvy; Finance, Joseph Noulens; War, M. Messimy; Marine, M. Gauthier; Public Instruction, M. Augagneur; Public Works, René Renoult; Commerce, Posts, and Telegraphs, Gaston Thomson; Agriculture, Fernand David; Colonies, M. Raynaud; Labor, M. Couyba. M. Viviani submitted the programme of the new Ministry to the Chamber on June 16. Although he affirmed the impossibility of altering the three-years' service law until substitute proposals of the Socialists for the preparatory training of youths and the development of reserves had proven their efficiency, the Ministry received a vote of confidence of 362 to 139. As to finance, M. Viviani's programme proposed an issue of $360,000,000 in 3½ per cent., 25-year bonds subject to a four per cent. income tax. Of this loan $160,000,000 was issued at 92 on July 7, the subscriptions amounting to 40 times the amount of the loan. The budget was finally passed a week later. The income tax was established in principle, though in a much more moderate form than the Radicals and Socialists urged. Incomes of $1,000 over certain deductions are liable to the tax, which rises from 0.4 per cent. on net incomes between $1,000 and $2,000 by increments of 0.2 per cent. and $1,000 to two per cent. on incomes over $5,000.

The Caillaux Case.—Mme. Caillaux was brought to trial for the murder of Gaston Calmette on July 20. The prosecution labored to prove premeditated murder. Mme. Caillaux declared that she had visited the offices of the *Figaro* to prevent the threatened publication of personal letters stolen by Mme. Gueydan, the divorced first wife of M. Caillaux, and that the killing resulted accidentally from excitement in the presence of the man whose campaign against her husband had embittered their lives for upwards of a year. After a most sensational trial Mme. Caillaux was acquitted of willful murder by the jury on July 28, in the face of one of the strongest chains of evidence establishing premeditated crime ever recorded in French jurisprudence. The political passions aroused by the case and the verdict recalled the famous case of Dreyfus, but they vanished before the danger already threatening the security of the Republic.

The War.—German troops invaded France on Aug. 2, after a series of events which are outlined on another page (see III, *International Relations*). The French Army was already mobilized, and, as in England, the next care of the Government was the financial crisis. The Paris Bourse had succumbed to the flood of selling orders from other markets on July 28; on Aug. 2 the Government decreed a general moratorium and established regulations for the withdrawal of bank deposits. So far France has not been obliged to issue a war loan but has financed the war by the issue of Treasury bonds and advances ($1,200,000,000) from the Bank of France.

During the first month of the war

the tide set steadily against France and her British ally. As the Germans approached Paris, M. Viviani and his colleagues decided that the Cabinet should have a wider scope and comprise all the best men in the Republican groups. Accordingly the Cabinet resigned collectively on Aug. 26, and at the request of President Poincaré, M. Viviani formed a new Ministry in which the portfolios were distributed as follows the Premier remaining without portfolio: Foreign Affairs, Theophile Delcassé; War, Alexandre Millerand; Justice, Aristide Briand; Interior, Louis J. Malvy; Marine, Victor Augagneur; Finance, Alexandre Ribot; Public Instruction, Albert Sarraut; Public Works, Marcel Sembat (Socialist); Commerce, Gaston Thomson; Colonies, Gaston Doumergue; Agriculture, Fernand David; Labor, Bienvenu Martin; without portfolio, Jules Juesde (Socialist). On Sept. 3 the seat of government was transferred from Paris to Bordeaux, where it remained for more than three months. The Cabinet returned to Paris on Dec. 11 and the National Assembly met in the capital on Dec. 22.

GERMANY

The Military in Alsace.—The issue of the constitutional crisis provoked late in 1913 by the oppression of the civil population of Zabern, Alsace, by certain officers of the garrison (*A. Y. B.*, 1913, p. 145) was a complete triumph of the Imperial Chancellor over the Reichstag. As a concession to the adverse opinion expressed in the extraordinary vote of censure in the Reichstag on Dec. 4, 1913, the Emperor ordered the transfer of the Zabern garrison and the court-martial of the accused officers. Lieutenant von Forstner, the chief figure in the charges of violence, was convicted by the military court at Strassburg on Dec. 19 of assault, wounding and unlawful employment of weapons, and sentenced to 43 days' imprisonment. But the same court on Jan. 10 reversed this decision and acquitted the commandant, Colonel von Reuter, and his subordinates of the fully proved charges of unwarranted assumption of police functions, unlawful detention of citizens, violation of domicile, and assault. The Reichstag opposed by the uncompromising attitude of the Government, adopted on Jan. 25 a few motions of more than ordinary futility. Later it attempted to enact legislation to subject the military to the civil jurisdiction and to prohibit the use of arms by the soldiery except in self-defense. A Government majority in the committee to which these bills were referred voted against them and the committee was dissolved on Feb. 26. The incident closed with no more effective protest than the resignation of the Statthalter of Alsace-Lorraine and the principal members of the Ministry on Jan. 29. In April, however, the Government promulgated new Army regulations forbidding the military to intervene in civil disorders except "when in cases of urgent danger for public safety the civil authorities, as the result of external circumstances, are unable to demand its help."

Politics.—The recalcitrancy of the Liberal-Radical-Socialist majority in the Reichstag, though it disintegrated in the Zabern affair, defeated the Government's programme of legislation. After repeated threats the Government closed the session on May 20. At the last moment the budget and a few minor measures were hurried through, but the mass of the legislative work of many months was nullified. The most important of the measures which failed through obstruction included bills to create a petroleum monopoly, to increase the salaries of civil servants, and to prevent betting, all of them Ministerial proposals.

Commerce.—The expansion of Germany's foreign trade was at a less rapid rate in 1913 than in the preceding year, when both imports and exports increased by more than 10 per cent. Imports increased only from $2,670,725,000 to $2,689,425,000; exports, however, increased from $2,236,350,000 to $2,521,800,000. The United States easily maintained the position, won in 1912, of the largest exporter to Germany, while Great Britain remained her principal customer, taking nearly as much German goods as the two Americas together. During the first six months of 1914 imports were $1,369,500,000 and ex-

ports $1,269,750,000, compared with $1,357,750,000 of imports and $1,235,750,000 of exports in the corresponding period of 1913. The greater part of Germany's foreign commerce has been destroyed by the war, but statistics of the loss, of course, are not available.

The Kiel Canal.—The reconstructed Kiel Canal was formally opened to public traffic on June 24. The original canal was completed in 1895 at a cost of 156 million marks. Its dimensions were: length, 99 km.; depth, 9 m.; surface breadth, 67 m.; bed, 22 m.; its locks were 150 m. long and 25 m. wide. Within ten years the increase in the size of naval vessels indicated that these dimensions would have to be largely increased to meet the needs of the German navy and a general reconstruction was undertaken. The new canal is 44 m. wide at the bottom and 101.75 m. at the top, and has a depth of 11 m. The new locks at either end are the largest in the world, 330 m. long, 45 m. broad, and 13.77 m. deep. There are 11 passing points, four of which can be used for turning, a strategic provision of great value. Altogether the reconstruction of the canal has cost 223 million marks.

The War.—Details of internal conditions in Germany since the outbreak of the war are exceedingly meager. Official reports claim that business and industries are being conducted as usual and Germany has been particularly insistent that she has not been obliged to resort to the moratorium. It appears nevertheless that payment of American drafts has been refused on the ground that they are uncollectable under a decree of the Federal Council, dated Aug. 10, postponing payments until Oct. 9 and on the latter date extended until Jan. 9, 1915. The first German war loan authorized by the Reichstag on Aug. 4, amounted to 4,389 million marks, issued at five per cent. The Reichstag met on Dec. 2 to authorize a second loan of 5,000 million marks. It is reported that the Government has issued large amounts of paper money which has depreciated the currency to such an extent that the publication of exchange rates has been prohibited. A measure of the extent of the depreciation is the fact that in Switzerland on Nov. 21 the rate of exchange for 100-mark notes, for which par is 123.6 f., was 111 f.

RUSSIA

Politics.—M. Kokovtsoff, Premier of Russia since the assassination of M. Stolypin in September, 1911 (*A. Y. B.*, 1911, p. 140), and Minister of Finance since 1906, resigned on Feb. 11. Under his administration a chronic deficit in the budget of ordinary expenditures was replaced by a large annual surplus from which the Government was able to finance most of its extraordinary undertakings. The chief source of revenue on which M. Kokovtsoff depended was the proceeds of the government spirit monopoly, which rose from $354,000,000 in 1908 to $412,000,000 in 1912, or 26.6 per cent. of the total ordinary revenue of $1,552,000,000, and for which a yield of $467,000,000 out of a total revenue of $1,760,000,000 was estimated for 1914, at an estimated cost of administration of $120,000,000. To restrain this policy of fostering for the benefit of the finances the growth of a traffic productive of appalling evils among the Russian peasantry, a temperance bill was introduced in the Fourth Duma in 1913 which was strongly supported in the Duma and the Council of Empire. The reason officially assigned for the retirement of M. Kokovtsoff was the dissatisfaction of the Czar with this feature of his fiscal administration.

The serious purpose of the Czar to combat the drink evil, indeed, could not be questioned. In a rescript to M. Bark, the new Finance Minister, he deplored the sad facts of weakness, poverty and desolation, the inevitable results of drunkenness, revealed in his recent tour of the Empire. He declared that it was inadmissible longer to permit the favorable financial position of the Government to depend on the destruction of the moral and economic strength of the great multitude of Russian citizens, and charged the new Minister to effect radical reforms, to the end that the financial policy might be reëstablished on the basis of deriving revenue from the products of the inexhaustible wealth

of the country and the productive labor of the population. The new administration undertook to reduce the output of vodka, to increase the penalties for illicit trading, to encourage a temperance crusade through churches and schools, and to prohibit the plea of extenuating circumstances in the prosecution of crimes committed in drink. The Council of Empire passed the temperance bill and sent it back to the Duma with amendments. During the summer the campaign against drunkenness made steady progress and prepared the way for the astounding measures which since the third month of the war have enforced absolute prohibition in Russia. In October an Imperial edict cancelled forever the connection of the Government with the liquor traffic. The sale of vodka and other spirits except in restaurants of the first class was prohibited in the early days of the war, and on Oct. 26 this slight exception was revoked. The sale of wine and beer was interdicted a few days later and on Nov. 16 prohibition became absolute throughout the country.

The forces of reaction found little encouragement in the attitude of the Czar throughout the year. In a special conference with the Ministry on Feb. 23 he enjoined the necessity of harmonious coöperation between the Government and the legislative chambers in order to promote the reforms promised in the Imperial manifesto of October, 1905. The Czar's decision to leave M. Goremykin without a portfolio was inspired by a desire to place the Premier above departmental rivalries. An Imperial rescript issued to M. Goremykin on March 20 ordained that the Ministry must be strong and united, working in harmony with the legislature; it declared the functions of the legislature to be strictly defined by law, and discountenanced personal ambition on the one side and unwarranted concessions on the other. Thus the Czar put an end to the efforts of the reactionaries to make the Duma a mere consultative body and served warning on those in the upper house who persistently wrecked the Government's reform schemes. It can scarcely be doubted that the war, in which Russia appears, so far as the meager details of internal conditions available enable us to judge, as a united nation, will result in further progress toward democratic government. The Czar has already, by proclamation of Aug. 15, promised autonomy to Poland under Russian suzerainty, with full liberty of religion and language.

Commerce.—Russia's foreign trade in 1913 totaled $1,320,700,000, an increase of $52,000,000 over the record figure of 1911. The export trade of $710,500,000 was lower than either of the two preceding years, but the imports were higher than ever before, reducing the favorable balance of trade to about one-half the average of the last ten years. The increase in imports from $518,400,000 in 1912 to $610,300,000 in 1913 was chiefly in raw materials required by the rapid development of industry. Russia's chief customer was Germany, who took exports valued at $226,000,000, followed by Great Britain, Holland and France. All countries except the United States shared in the increase in imports, Germany supplying $341,000,000 or 52.7 per cent. Imports from the United States declined to $37,000,000, a decrease of nearly $6,000,000, chiefly in agricultural machinery.

OTHER COUNTRIES

Albania.—At the close of the Balkan War of 1912-13 the Concert of Europe created on the east coast of the Adriatic the autonomous state of Albania (*A. Y. B.*, 1913, p. 102-5). The territory allotted to the new state comprised the old Turkish provinces of Scutari and Yanina and parts of the vilayets of Kossovo and Monastir (for exact boundaries see *A. Y. B.*, 1913, pp. 102-4). The total area of the new state was thus between 10,500 and 11,500 sq. miles, and the population approximately 850,000. About two-thirds of the population are Moslem; the Christians of the north are mostly Roman Catholic, while those of the south adhere to the Greek Church.

The independence of Albania was proclaimed at Valona on Nov. 28, 1912, and a provisional government was then formed under the leadership of Ismail Kemal Bey. The Confer-

ence of Ambassadors at London accepted the principle of Albanian autonomy on Dec. 20, 1912. In 1913 the boundaries of the new state were delimited by international commissions, and an administrative system was devised with a European prince nominated by the Powers as King (*mpret*) and an International Commission of Control responsible for the civil and financial administration. This body, composed of seven members representing Albania and the six Powers of the Triple Alliance and the Triple Entente and instituted for a minimum period of ten years, held its first meeting at Avlona on Oct. 15, 1913. A month later Prince William of Wied was selected by the Powers as the future sovereign of Albania.

In January the International Commission of Control began the organization of a central government, in anticipation of the accession of the new sovereign. On Feb. 1 they persuaded Essad Pasha, head of the provisional government, to renounce an office assumed after his surrender of Scutari to the Montenegrins in April, 1913 (*A. Y. B.*, 1913, p. 148). Prince William, conditioning his ascension of the proffered throne on immediate provision for the financial necessities of the new state, secured from the Austro-Hungarian and Italian Governments an advance of $2,000,000 of the international loan of $15,000,000 projected to meet its initial needs. He accepted the throne of Albania at Neuwied on Feb. 21 from a deputation of Albanians headed by Essad Pasha, and arrived at Durazzo, his new capital, on March 7. Ten days later the International Commission completed the machinery of government by the appointment of seven members, with Turkhan Pasha as Premier and Essad Pasha as Minister of War and the Interior.

Prince William's reign was brief and turbulent. He found the entire country in a state of anarchy and one district in open revolt. After months of negotiation Greece agreed on Feb. 22 to respect the decision of the Powers on the delimitation of Albania and to withdraw her troops from northern Epirus (see III, *International Relations*). The Epirotes of Himara, incensed at their surrender to the Albanian Government without definite safeguards, immediately declared their independence. The Greeks endeavored to reassure the Epirotes and stem the revolt, but on the transfer of the administration early in March, the insurrection was general over wide areas of southern Albania under the control of a provisional government at Argyrocastro. The Epirotes demanded, as securities against oppression, full religious liberty, freedom for Greek schools, a diet on the Croatian model, a separate administration presided over by Swiss or Dutch officials, and a partially Christian army of *gendarmerie* for service in their district. The regular forces at the disposal of the Albanian Government were insufficient to cope with the situation, and when the restraint of the Greek army of occupation was withdrawn by the evacuation of Northern Epirus on April 28, the International Commission undertook to mediate between the Government and the rebels, whose offensive strength became daily more threatening. The revolt was terminated by an agreement reached on May 17, in which the Albanian Government granted the Epirotes various concessions for the security of their religion and language.

Meanwhile, more serious trouble was brewing at the capital. On the formation of the Cabinet Essad Pasha quickly became the dominant figure in the Government. As Minister of War he urged Prince William to allow him to raise an army among his Moslem coreligionists to drive the Greeks out of Epirus and crush the Epirote revolt. The Prince, on the advice of the International Commission, refused his consent, and in resentment Essad Pasha entered into communications with fanatical agitators engaged in exciting the religious animosities of the Moslems of the district around Tirana. Prince William detected the intrigue, caused Essad Pasha's arrest, and on May 20 deported him on an Italian steamer. Three days later Durazzo was thrown into a panic by an attack by insurgent Moslem bands. The Prince's Catholic bodyguard of Malissors deserted him and he took refuge with his family and staff on an Italian warship of the

international squadron in the harbor. The insurgents, after a brief attempt to force the vigorous defense of the Dutch *gendarmerie*, sent the Prince an offer to negotiate. He returned to the shore with his prestige seriously impaired, and by means of liberal concessions to the Moslems arranged a truce. Emboldened by this success, the insurgents entered into negotiations with the International Commission, to whom they offered suggestions for Moslem representation, the abdication of Prince William, and the appointment of a Moslem ruler in a manner to suggest the complicity of the Young Turks in the genesis and direction of the revolt. The Commission, after a fortnight of evasive bargaining, refused to treat further with the rebels. A defensive force was raised with difficulty among the Christian tribes of the North and Durazzo was placed under martial law. The insurgents began a regular siege of the capital on June 15, and the squadron of Italian, Austrian and British warships was reinforced from the Russian and French fleets. A Christian force marching from the North to relieve the town was defeated on June 23. On June 27 the rebels put forward a formal demand for the abdication of Prince William and the election of a new ruler by an Albanian convention, with an interim government by the International Commission. Early in July the Epirotes again revolted and captured in quick succession Kortiza, Klisura and Terpelen. Prince William appealed to the powers on July 10 for military and financial aid, but in the crisis then preparing the Concert of Europe was no longer able to sustain the state it had created.

On the outbreak of the European War Albania relapsed into its previous state of unrestrained anarchy. Prince William finally left Durazzo for Italy on Sept. 3 after a bombardment of the capital by the insurgents. Late in the month the Albanian Senate elected to the vacant throne Prince Burhan-Eddin, son of the former Sultan Abdul Hamid, and Turks assumed full control of the government. Essad Pasha entered the capital on Oct. 4 at the head of an army of 10,000 men and two days later was appointed President of the provisional government. Another month of anarchy created a condition which threatened Italian interests in the Adriatic, and on Oct. 26 an Italian naval force occupied Avlona. On the following day Greece occupied the Argyrocastro and Premoti districts in Epirus. In December a revolution began against Essad Pasha and on Dec. 25 an Italian force again occupied Avlona. Thus Albania again becomes an international prize (see also III, *International Relations*).

Austria-Hungary.—With the exception of the crime which fired the train of the present European conflict, the internal history of Austria-Hungary during the year was a repetition of familiar political discord without noteworthy incident. The Archduke Franz Ferdinand, heir-apparent to the throne of the Dual Kingdom, was assassinated on June 28 at Sarajevo, Bosnia, whither he had gone on a military inspection with his wife, the Duchess of Hohenberg, who shared his fate. On the way to the Town Hall to receive an address of welcome, the royal party narrowly escaped assassination by a bomb thrown by a young printer, Nedjeliko Cabrinovitch, a native of Herzegovina belonging to the Serb-Orthodox faith. As the procession returned from the Town Hall a second bomb was thrown at the Archduke's motor car by Gavrilo Prinzip, a Bosnian high-school student, also of the Serb-Orthodox faith. When this bomb failed to explode, Prinzip drew a revolver and fired three shots, two of which struck the Archduke and the third his wife. Both died within an hour.

The Archduke Franz Ferdinand was born Dec. 18, 1863, the son of the Archduke Karl Ludwig, late brother of the Emperor Franz Josef, and Princess Annunciata, daughter of King Ferdinando II of Naples; he was married morganatically on July 1, 1900, to the Countess Sophia Chotek, who became later Duchess of Hohenberg. On his death the succession to the throne passed to the Archduke Karl Franz Josef, son of the Emperor's younger brother, the late Archduke Otto, and Princess Maria Josepha of Saxony. The new heir-apparent was born on Aug. 17, 1887,

and married on Oct. 21, 1911, Princess Zita of Parma.

The crime was followed by anti-Serb demonstrations, from which gradually developed the theory that the murder was the result of a widespread conspiracy directed from Belgrade. This view was at once advanced by the whole Conservative and Clerical press of Germany, which assailed Servia in the most violent language. The assassin assumed full responsibility for the murder and denied any knowledge of a larger conspiracy. Nevertheless, the Austro-Hungarian Government in the ultimatum of July 23 charged the Servian Government with abetting propaganda against the Dual Monarchy and at least indirect responsibility for the murder of the Archduke, and demanded reparation in terms intolerable to an independent state. The inevitable result of the attitude assumed by Austria and maintained with the backing of Germany was the war which is now convulsing Europe. (See III, *International Relations.*)

Belgium.—The elections in May for the renewal of one-half the Chamber of Deputies reduced the majority of the de Broqueville Government from 16 to 12. The state of the parties in the new Chamber was: Catholics, 99, a decrease of two; Liberals, 45, an increase of one; Socialists, 40, an increase of 39; and two Christian Democrats.

The tragic history of Belgium in the European War is outlined on other pages (see III, *International Relations*; and *The European War, infra*). Through loyalty to her obligations as a state neutralized by guarantee of the European Powers, Belgium is at the close of the year practically a government without a country, her King in exile, her people destitute, her cities laid waste, and her territory temporarily in the hands of a ruthless enemy.

Italy.—In the first session of the new Chamber of Deputies elected in November, 1913 (*A. Y. B.*, 1913, p. 151), the Italian Government began to gather the fruits of the Turco-Italian war. King Victor opened Parliament on Dec. 18, 1913, with a speech of exposition and justification of the foreign policy which dictated the annexation of Tripoli in 1912. The Liberal Ministry headed by Signor Giolitti, supported by an apparently firm coalition of the 228 Liberals and 80 Radicals in the Chamber of 508 members, received thereupon a vote of confidence of 362 to 90. But the introduction of the budget for 1913-14 brought clearly before Parliament the serious financial problems created by the war and the administration of the new colony. By a method of accounting authorized by the Italian budgetary laws, Signor Tedesco, the Finance Minister, reported a surplus for the fiscal year 1912-13 of $22,860,000. Without any provision for the cost of the Libyan war, however, the actual expenditure for the year, including capital expenditure on railways and unauthorized grants for afforestation, the army, the navy and other purposes, exceeded the revenue by $11,520,000. Industry and trade were already seriously depressed by the scarcity of money; unemployment in 1913 increased emigration, which had fallen to 450,000, for the first time to more than a million. Hence, the Socialists had little difficulty in turning to account the aggravation of popular discontent by the defects of the financial administration to compel the Government in February to allow full discussion of the hitherto uncontrolled expenditures in Libya. The Government reported the total cost of the war to Dec. 1, 1913, exclusive of civil expenditure on the new colony, as $249,200,000, and estimated the expenditure during the fiscal year ending June 30, 1915, assuming complete pacification of the territory, at $25,700,000. The debate convicted the military administration of culpable waste and inefficiency. The Radicals assisted the Government to defeat a demand for a thorough inquiry by a vote of 300 to 80, and then decided to divest themselves of further responsibility for the war by withdrawing from the alliance with the Liberals. Deprived of the support of the Radical groups, the Giolitti Ministry was forced to resign on March 10.

Signor Salandra, the former Minister of the Treasury, completed a new Cabinet on March 24 in which the portfolios were distributed as follows:

Interior, Signor Salandra; Foreign Affairs, Marquis di San Guiliano; Colonies, Signor Martini; Justice and Ecclesiastical Affairs, Signor Dari; Treasury, Signor Rubini; Finance, Signor Rava; War, General Grandi; Marine, Admiral Millo; Public Instruction, Signor Danes; Public Works, Signor Cinfelli; Agriculture, Industry and Commerce, Signor Cavasola; Posts and Telegraphs, Signor Riccio.

The attitude of Italy in the European War is discussed on another page (see III, *International Relations*). The Government has declined to join Italy's allies of the Triple Alliance in an aggressive war, but has resisted so far a strong popular demand for entry into the war on the side of the Triple Entente to recover the Italian provinces under Austrian rule. Nevertheless, military preparations have been pushed forward with all possible speed. Dissatisfaction with the condition of the army led to the resignation of the Minister of War, General Grandi, on Oct. 9, and the substitution of General Zupelli. Marquis Antonio di San Guiliano, the Foreign Minister and the strongest advocate of Italian neutrality, died on Oct. 16. Premier Salandra assumed the portfolio temporarily and held it until the reorganization of the Cabinet forced by the resignation on Nov. 1 of Signor Rubini, Minister of Finance, over the measures to be taken to meet the military expenditures. On Nov. 4 Baron Sidney Sonnino became Minister of Foreign Affairs, Paolo Carcano, Minister of Finance, and Vittorio E. Orlando, Minister of Justice. The Italian Parliament opened on Dec. 3 and on the 5th the Chamber of Deputies passed a resolution of confidence in the Government by a vote of 413 to 49.

Portugal.—The Democratic Cabinet headed by Dr. Alfonso Costa (*A. Y. B.*, 1913, p. 151), unable to break a parliamentary deadlock created by the systematic rejection of all Government measures by an opposition majority in the Senate, resigned on Jan. 27. Dr. Bernardino Machado, after a vain attempt to meet President Arriaga's wishes for a Ministry composed exclusively of non-party elements, completed on Feb. 8 a coalition Cabinet in which the portfolios were distributed as follows: Interior and Foreign Affairs, Dr. Machado; Justice, Manoel Monteiro; Finance, Thomaz Cabreira; War, Antonio Pereira d'Eca; Marine, Peres Rodrigues; Public Works, Achiles Goncalves; Colonies, Conceiro Costa; Public Instruction, Almeida Lima.

The principal items of the programme announced by the new Ministry were the revision of the church and state laws; the reform of the electoral law to assure complete freedom to voters at the approaching general election; the granting of amnesty to political prisoners. A bill liberating and granting amnesty to the several hundred persons imprisoned for complicity in risings against the Government, except 11 of the leaders who were exiled for a maximum period of 10 years, was passed on Feb. 21.

With respect to the European War Portugal stands by the obligations of her old treaty of alliance with England. A declaration to this effect was made immediately after the outbreak of the war and on Nov. 23 the Portuguese Congress authorized the Government to take all necessary steps to redeem her pledges. Dr. Machado and his Cabinet resigned on Dec. 5, and the new Ministry, headed by Victor Coutinho, on Dec. 14, declared its readiness to act in defense of Portuguese territory or on the demand of England. In anticipation of being called upon to operate against the German West-African colonies, the forces in the Portuguese African colonies have been very materially strengthened.

Rumania.—King Charles (Carol) I of Rumania died suddenly on Oct. 10. As Prince Charles of Hohenzollern-Sigmaringen he was elected ruler of the newly freed principalities of Moldavia and Wallachia on April 20, 1866, and proclaimed King of Rumania on March 26, 1881. His consort was Princess Elizabeth of Wied, to whom he was married on Nov. 15, 1869. As a Catholic and a Hohenzollern King Charles brought and kept Rumania in close touch with the Triple Alliance, and on the outbreak of the present war maintained the neutrality of Rumania in the face of strong pressure to occupy the Aus-

trian provinces of Transylvania and Bukowina. In default of direct heirs, he was succeeded by his nephew, Prince Ferdinand of Hohenzollern-Sigmaringen, born Aug. 24, 1865, and married, Jan. 10, 1893, to Princess Marie of Saxe-Coburg and Gotha.

Spain.—The Cortes was dissolved by royal decree on Feb. 13; it had the longest life of any Parliament in 30 years, but its functions were continually interrupted by ministerial difficulties since the assassination of Señor Canalejas in November, 1912. Elections to the Chamber of Deputies were held on March 8, and to the elective part of the Senate on March 15. In both the Conservatives (Monarchists) were successful, and in the Chamber they obtained a substantial majority over all other parties combined. The new Senate is constituted as follows: Conservatives, 98; Liberals, 40; Democrats, 9; Republicans, 3; Reformists, 3; Regionalists, 6; Carlists, 3; Independents, 7. In the Chamber the strength of the parties is as follows: Conservatives, 235; Liberals, 112; Moderate Republicans (Reformists), 12; Republicans, 18; Regionalists, 13; Carlists, 5; Independents, 6. The Ministry formed in October, 1913, by Don Eduardo Dato was confirmed in office.

The King's speech at the opening of the new Cortes in April announced a new commercial treaty with Italy and foreshadowed an attempt to enforce compulsory military service and a project to modernize and develop the Navy. The budget for 1915 estimated expenditure at $291,200,000 and revenue at $271,000,000. The deficiency was further increased by temporary services to a total of $32,000,000, to be obtained by loan. To meet this new burden Count Bugallal, the Finance Minister, proposed a complete reorganization of the stamp duties, a reform in the match monopoly and a revision of the taxes on incomes and profits.

The naval programme was introduced in June. Admiral Miranda adhered to the policy laid down in the law of Jan. 7, 1908, for the purpose of maintaining the navy yards in constant activity and encouraging the industries stimulated by shipbuilding. To this end the Government requested an annual credit of $7,200,000 for nine years beginning with 1915 to be devoted to naval construction. They proposed besides to lay down before the end of 1917 two first-class battleships, two cruisers, and three submarines. The total cost of the armament programme covered by the estimates was $21,600,000. In addition provision was made for further expenditure of $10,000,000 on naval bases between the years 1915 and 1924.

Sweden.—Swedish politics were thrown into confusion early in the year by a constitutional crisis provoked by a popular movement for an increase of armaments. The territorial *status quo* of Sweden was guaranteed by the Baltic Convention of 1908. With this security the Liberal Government headed by Karl Albert Staaff elected in 1911 (*A. Y. B.*, 1911, p. 142) halted the naval programme of its Conservative predecessor and submitted the whole question of national defense to a commission of inquiry, in the hope that an efficient system might be developed without increasing expenditure or lengthening the term of military service. But public apprehension was revived by the increasing tension in the European situation; national subscriptions started in 1912 by Sven Hedin, the explorer, collected $4,230,000 for the construction of a new warship and $830,000 for the purchase of aeroplanes for the Army; and in December, 1913, Premier Staaff announced a new defense programme which was officially recommended to Parliament in the Speech from the Throne at the opening of the session on Jan. 16.

A remarkable demonstration of peasants from all provinces of the kingdom was organized in Stockholm on Feb. 6 in support of the defense propaganda. King Gustav, replying to an address affirming the readiness of the peasantry to assume the burden of increased armaments, assured the representatives of the peasants that he was resolved to accept no compromise on the immediate completion of the national defenses and the increase of both Army and Navy. Certain discrepancies between King Gustav's pledges and the announced programme of the Government led to a protest from the Ministry that they

had not been previously informed of the tenor of a speech which conveyed assurances not constitutionally approved in council. The King, while disclaiming any intention of usurping the functions of the responsible Ministry, maintained his right under the Constitution to communicate his opinions freely to the people. On Feb. 10 Premier Staaff and his Cabinet resigned.

The Liberals refused to accept office in a new ministry, and Baron Gerald de Geer, the King's first choice for Premier, gave way to Herr Hammarskjöld, who completed a non-party Cabinet on Feb. 16, assuming himself the portfolio of War. The lower house of the Riksdag was dissolved by royal decree on March 5, and a general election was fixed for April. The Conservatives fought the campaign almost exclusively on the platform of national defense; the Liberals, on the other hand, subordinated the question of armaments to the issue of democratic government. In the elections the Liberals were completely overthrown, losing 22 seats to the Conservatives and nine to the Socialists. The standing of the parties in the new Chamber was: Conservatives, 86; Socialists, 73; and Liberals, 71.

The Hammarskjöld Ministry, which was continued in office, proposed a defense programme practically identical with that initiated by Herr Staaff, but it was held in abeyance until after the regular general election in September. In this election the Conservatives neither lost nor gained, but the Liberals lost 14 seats to the Socialists, who now have 87 seats to the Liberals' 57. The Conservative Ministry has been continued in power, but it is expected that the government will pass to the Socialists at the conclusion of the European War.

Turkey.—Turkey's first efforts at recuperation after the Balkan defeat of 1912-13 (*A. Y. B.*, 1912, pp. 89-93, 142-144; 1913, pp. 94-106, 146-149) were directed towards the economic development of the Asiatic provinces through railway and other concessions. The conditions of the loan of $100,000,000 negotiated by Djavid Bey in Paris (*A. Y. B.*, 1913, p. 110) divided Asiatic Turkey into three spheres of railway influence, Russian, German and French. The Russian sphere, largely taken over by French capital, was bounded by a line commencing at Adabazar on the German Anatolian Railway and extending through Kaisarieh, Sivas, Kharpoot, Diarbekir and Van, indicating a project for a railway financed in Paris running a short distance south of the Black Sea from Adabazar by Heraclea to Samsoun and thence southeast to Diarbekir with an eventual connection with Erzeroum. France was given concessions in Syria, particularly for an extension of the railway connecting Aleppo with Beirut and Damascus southward to a point on the Jaffa-Jerusalem line. To Germany was allotted the whole of the Bagdad Railway region, to be linked up with the French system by short lines at Diarbekir and Sivas and by a junction at Aleppo.

A promising scheme of reforms for Armenia was projected in an agreement between Turkey and Russia signed at Constantinople on Feb. 8. It granted the five Armenian vilayets a measure of popular government, assisted and controlled by officials supplied by minor European states, nominated by the Porte from candidates approved by the Powers. The plan provided for each vilayet a European inspector-general with powers of supervision and control over the police, the courts and the general administration, and an elective council presided over by the vali, in three of the vilayets half Christian and half Mussulman, with jurisdiction over finance. Equality of opportunity for government employment in the police and *gendarmerie* was guaranteed to Mussulmans and Christians alike. Military service was made strictly local, and the bearing of arms by the local regiments was restricted to maneuvers and mobilization.

Late in 1913 Turkey turned to the repair of her naval and military forces. The British Naval Mission, in charge of the reorganization of the Navy since 1909, was continued, the fleet was strengthened by the purchase on Dec. 27, 1913, of the Brazilian dreadnought *Rio de Janeiro* under construction in England, and in Feb-

ruary a concession was granted to British firms for the reconstruction of the Constantinople navy yard. Notwithstanding the crushing defeats of the Balkan War, the Government retained the German Military Mission, in charge of the reorganization of the Army since 1909, and through the influence of Enver Pasha, who succeeded Izzet Pasha as Minister of War on Jan. 4, the scheme of reorganization was amplified and the powers of the German mission extended, German officers being placed in actual command of important units of the European force.

The Turkish Parliament was reopened on May 15 after an interval of nearly two years. The Sultan's speech admitted the financial necessities of the country, which had forced an application to the Powers for the approval of new taxes. It committed the Government, nevertheless, to a policy of military and naval expansion. In this German influence soon became predominant, and the suicidal entry of Turkey into the European War on the side of Germany on Nov. 1 was a result obviously foreseen and prepared against by the Powers of the Triple Entente (see III, *International Relations;* and *The European War, infra*). Opinion in Turkey, however, is far from being unanimously in favor of war. The first aggressive acts against Russia in the Black Sea, into which it is alleged Turkey was tricked by her German leaders, disrupted the Cabinet, and internal conditions in Turkey are reported to be highly unsettled.

ASIA

China.—A fortnight after the inauguration of Yuan Shih-kai as President of the Chinese Republic on Oct. 10, 1913, the constitutional convention in session at Peking completed the draft of a constitution of 113 articles. It reflected the propaganda of the radical Kuo-ming-tang party against the alleged autocratic designs of Yuan Shih-kai (*A. Y. B.*, 1913, p. 153) by restricting the power of the President within narrow limits. On this point Yuan Shih-kai, realizing the imperative need of a strong executive, definitely joined issue with the National Assembly. After a bitter controversy with the inefficient and visionary politicians who composed the majority of China's first Parliament, he took the drastic step of expelling the representatives of the Kuo-ming-tang by a presidential mandate issued on Nov. 4, 1913 (*A. Y. B.*, 1913, p. 155). The National Assembly was thus permanently suspended, since a quorum was left in neither house, and Yuan Shih-kai created in its stead a nominated Administrative Council of 71 members, representing the President, the Cabinet, the nine ministries, the provinces, and Mongolia and Tibet, with which he proceeded to exercise the full powers of government. With the approval of the Administrative Council, the Vice-President, the military and civil authorities and the provincial governors, the President dissolved the National Assembly by proclamation on Jan. 11. A few days later he issued a mandate dissolving the district councils in the provinces, on the ground that they interfered with the administration and were in many cases hotbeds of sedition.

To confirm his virtual dictatorship Yuan Shih-kai caused the provisional constitution to be amended by a convention of his own appointing. Under the new draft, promulgated on May 1, the power of the President is practically autocratic. The bicameral National Assembly has been replaced by a single legislative chamber partially appointed and partially elected under a restricted franchise favorable to the administration. The real controlling power in legislation is vested in the President, and in many instances the legislature is relegated to an advisory position. It may not reject or reduce estimates for expenditures made necessary by permanent law or by treaty or for the army and navy, and if it does not vote the estimates as a whole, the appropriations of the previous year are continued in force. The partial responsibility of the ministers to Parliament has been abolished. The Cabinet and Premier have disappeared and the heads of the executive departments are respon-

sible only to the President. An Advisory Council, a nominated body without legislative powers, assists the President with advice and suggestions. To this body, as to the other offices of state, Yuan Shih-kai appointed men of conservative tendencies personally loyal to himself, many of them officials under the old *régime*. He established a new system of administration with the *tao* instead of the province as the administrative unit, and abolished the provincial military governor, placing the troops under commissioners responsible to the central government.

At the desire of Yuan Shih-kai the Administrative Council on Jan. 30 passed an act prescribing the worship of Heaven and of Confucius. A movement for the restoration of Confucianism as the state religion which first attracted attention in 1913 was strongly opposed not only by Christian missionaries of all sects but also by Mohammedans, Taoists and Buddhists. The draft constitution approved by the constitutional convention on Oct. 25, 1913, made no provision for a state religion. Yuan Shih-kai, however, determined to restore the ancient rites to check by the influence of religion the moral laxity engendered by the revolution.

The financial situation showed some improvement during the year. In February Yuan Shih-kai appealed to the provinces for larger and more regular contributions to the central Government. Provincial taxation was reorganized and more efficient collection machinery instituted. The returns of the salt gabelle were much larger than the estimate, and from this source the Government obtained a large surplus after the retention of sums sufficient to meet foreign obligations. In May the Government received $3,500,000 from the provinces and $5,250,000 from the salt gabelle. Two loans amounting to $23,175,000 were extinguished during the year.

For the material development of the country the Government granted several important foreign concessions. On Dec. 18, 1913, a contract was signed with Messrs. Paulings, a British concern, for the construction of a railway from Shasi, in Hupeh, to Singyifu, in Keweichow, *via* Changteh and Kweiyang in Hunan, with a branch to Changteh and Changsha, aggregating 800 miles. Contracts for two railways under German control were signed on Dec. 23, 1913, the first running from Kaomi near Kiao-chau, on the Shantung Railway, southward to Hanchwang, the second extending the Shantung Railway from the terminus at Tsinanfu to Shunteh, on the Hankow Railway. These lines were intended to form part of the Chinese state railway system after the repayment of the loan. A later agreement signed on June 24 provided for the extension of the first line to Suchowfu and for the financing of any extension of the second westward. Germany thus obtained the means of extending her influence westward from Shantung, to which she had been confined hitherto by the Kiao-chau Convention. In February the French Banque Industrielle de Chine concluded an agreement for the construction of a railway from Yamchow, near Pakhoi, through Nanking, Poseh and Singyifu to Yunnanfu, and thence *via* Weining to Chungking, a total length of about 1,000 miles. The project included also the construction of a port at Yamchow. In March a further agreement was reached with the Banque Industrielle for a five per cent. loan of $30,000,000 for harbor works at Pukow and water, tramway and light services of Peking, secured by the municipal revenues of Peking excluding the octroi. On March 31 the British and Chinese Corporation entered into an agreement for a loan of $40,000,000 at five per cent. for 45 years for the extension of the Shanghai-Nanking Railway through Nanchang to Pinghsiang, and the inclusion in the system of Pinghsiang-Chuchow line already constructed.

The American Red Cross entered into an agreement with the Chinese Government on Jan. 30 for a loan of $20,000,000 to undertake flood-protection work in the Hwai River Valley in the provinces of Kiangsu and Anhui, on the security of reclaimed lands now flooded or subject to inundation. The Standard Oil Company in February secured from the Government a concession for the exploitation of the oil resources of Chihli and Shensi provinces through a Chino-

American Company, in which the Chinese Government was to be given 37½ per cent. of stock free and the right to purchase 7½ per cent. additional within two years.

Japan.—During the fiscal year ended Jan. 31 revenue amounted to $212,483,000, an increase of $24,600,000 over the preceding year, and expenditure to $211,755,000, an increase of $10,968,000. The budget for 1914-15, introduced in the Diet on Jan. 21, indicated substantial progress toward fulfilling the promise of fiscal and administrative reform which has been the chief political issue in Japan since 1912 (*A. Y. B.*, 1912, p. 147; 1913, p. 155). It estimated revenue and expenditure at $322,600,000, an increase of $27,200,000 over the estimates for the preceding year. But it included in the revenue a surplus of $15,000,000 derived from administrative reforms inaugurated in 1913, forecasted a saving of $28,500,000 from the same source during the current year, and provided for a reduction of $5,100,000 in direct taxation. The estimate of expenditure on the army was slightly less than the previous year; the naval appropriation was increased by $1,500,000 to $50,000,000, $5,000,000 of which represented fresh capital expenditure, while a new naval programme costing $80,000,000 was announced, to be spread over a period of seven years.

Fiscal reform, however, did not serve to secure the Yamamoto Ministry against hostile attack. It was fiercely assailed by the radical element in the Diet for its failure to protect the rights of Japanese residents in California in the land-tenure controversy with the United States (see also III, *International Relations;* and *A. Y. B.*, 1913, pp. 16, 86). Baron Makino, the Foreign Minister, assured the Diet on Jan. 21 that, the United States having vouchsafed no reply to the third note of protest delivered by Viscount Chinda on Aug. 10, 1913, the Government would elaborate other plans for a settlement of the dispute. The opposition, however, found ready support among the mass of the people, discontented with the burden of taxation and disquieted by the devastations of a serious famine in Hokkaido and the northeast provinces and the eruption of Sakura-Jima, on the Island of Sakura, on Jan. 13-15. The proposed increase in naval expenditure further exacerbated popular indignation against the Government, and the discovery of corruption in the Admiralty completed the downfall of the Yamamoto Cabinet.

Late in January a German named Richter, formerly employed in the Tokio office of Siemens-Schuckert Company, manufacturers of electrical machinery, was convicted in Berlin of attempting to blackmail the company by means of stolen documents. One of the documents showed that Admiral Koichi Fujii had been guaranteed a commission of 3½ per cent. on all orders placed with the company by the Japanese Admiralty. The publication of the scandal in Japan kindled violent demonstrations against the Government. An official inquiry begun on Feb. 1 uncovered bribery by several contractors for the Navy, but implicated only a few officials, the most important of whom were Admiral Fujii, Admiral Matsumoto and Captain Sawasaki. Nevertheless, as the inquiry developed, hostility to the Ministry, and particularly to Admiral Yamamoto, became more intense, and on Feb. 10 the Government escaped a vote of censure in the Diet by the narrow majority of 41. The Ministry, prosecuting all the offenders discovered in entire good faith, with the Emperor's approval refused to accept isolated cases of corruption as sufficient reason for resignation. But the Diet early in February reduced the Government's new naval programme by $15,000,000; the House of Peers on March 13 made a further reduction of $20,000,000 which the Diet refused to approve. The two houses became hopelessly deadlocked and on March 23 the session of the Diet was suspended beyond the date of adjournment. On the following day Admiral Yamamoto and his Cabinet resigned.

The Emperor, inclined to oppose the general demand for a party Ministry, attempted to establish Viscount Kujoura in the Premiership. His effort to reëstablish the bureaucratic *régime* failed, and on the recommendation of the Elder Statesmen, the veteran Count Okuma was recalled from retirement. Count Okuma completed a

Cabinet on April 15, in which the portfolios were distributed as follows: Interior, Count Okuma; Foreign Affairs, Baron Kato; Finance, Mr. Wakatsuki; Navy, Admiral Yoshiro; War, General Oka; Justice, Mr. Oyaki; Education, Mr. Ichiki; Communications, Mr. Taketomi; Commerce, Viscount Oura. While the Ministry was opposed by the largest party, the Constitutionalists, it was supported by a coalition of three smaller parties. Its declaration of policy guaranteed closer observance of constitutionalism, strict official discipline, subordination of national defense to fiscal necessities, readjustment of finance to avoid the issue of new loans, and reduction of taxation.

The share of Japan in the European War is described elsewhere (see III, *International Relations*; and *The European War, infra*). As a result of her military and naval operations and the disorganization of her commerce, the budget for 1915, introduced in the Diet in December, estimated expenditure at $278,000,000 and anticipated a decrease in revenue of $40,500,000. The Diet refused to pass the budget and rejected a bill for an increase in the territorial army. To save the Ministry the Emperor dissolved the Diet on Dec. 25.

THE EUROPEAN WAR

ALEXANDER MARTIN

The Opposing Forces.—Austria declared war on Servia on July 28, after a series of events described in detail on another page (see III, *International Relations*). The declaration was made at noon by means of an open telegram, and the Servian Government at once abandoned Belgrade and proceeded to Kraguievatz, a fortified town 60 miles south of the capital, and thence, a little later, to Nish near the Bulgarian frontier. On the night of July 28-29 Austrian batteries on the north bank of the Danube and gunboats in the river began to bombard Belgrade. The Servians had already destroyed the bridge across the Danube. An Austrian column entered northwestern Servia near Losnitza and Austrian forces attempted to cross the Danube at many places below Belgrade. The Servians stoutly resisted these attempts at invasion until the pressure of the Russians in the north compelled the Austrians to withdraw their forces from Servia. On Aug. 8 Servian reports stated that every Austrian soldier had been driven from the country. On the same day it was reported that the Servian mobilization was complete.

While these events were taking place, six more European states had joined in the war, and Germany and Austria stood opposed to Great Britain, France, Belgium, Russia, Servia, and Montenegro; on Aug. 23, Japan joined the latter group, the "Allies," and, on Nov. 1 Turkey entered the war on the side of Germany and Austria (see also III, *International Relations*). The rest of the states of Europe, beginning with the Netherlands and Bulgaria on July 30, proclaimed their neutrality, mobilized their forces, and placed themselves in an attitude of defense. It is the purpose of this article to treat first the war on the sea and its far-reaching effects upon the fortunes of the belligerents; and afterwards to summarize the more important campaigns on land. A complete chronology of the war is given in Department XXXIII.

The War on the Sea.—When the war broke out the world's carrying fleet amounted to 47,000,000 tons. Of this, 40 per cent. was British, 11 per cent. German, 11 per cent. American (mostly on the Great Lakes), five per cent. Norwegian, five per cent. French, three per cent. Dutch, three per cent. Italian, and three per cent. Japanese; of the total shipping, 54 per cent. belonged to the Allies, 13 per cent. to Germany and Austria, and 33 per cent. to neutrals (see also XX, *Trade, Transportation and Communication*). In the last days of July word went out to European consuls throughout the world to hold all shipping in port and recall vessels at sea by wireless, and great liners were soon slipping into port with funnels repainted and all lights out. The first objective in the maritime war now beginning

was the control of the sea; for the side that obtained such control would secure practical immunity for its commerce and power to destroy its enemy's commerce. Moreover, where belligerents are entirely separated by the sea, as is the case with Germany and England, the victor at sea would obtain practical security against invasion and power to invade the enemy's territory. In a war between Germany and Austria on one side and France and Russia on the other, the great superiority of the German fleet would assure to Germany the command of the sea and enable her to protect her own commerce and destroy that of her enemies. Her reservists could return overseas, and her armies could capture her enemies' islands and other transmarine possessions. By the entry of England into the war, however, the command of the sea passed over to the Allies. England has dotted the face of the earth with naval stations, which, together with her fleets and her use of small effective expeditionary forces, have enabled her to dominate the fairest parts of the earth and become its leading power. Her great superiority at sea has permitted her to treat the enemy's coast strategically as the British frontier, and to hold the sea as territory which the enemy must be prevented from invading. (See also XII, *The Navy.*)

The immense superiority of British naval power is clearly apparent from the comparative table of the eight principal navies given on another page (see XII, *The Navy*), which indicates the condition of the belligerent navies on July 1. After the declaration of war against Germany, Great Britain commandeered two battleships building in British yards for Turkey and three monitors building for Brazil. Fifteen new ships were to be ready for the British Navy by the end of the year. The number of German ships completed in the same time has been variously placed at from three to nine. Mr. Churchill stated on Nov. 27 that Great Britain could lose a dreadnought a month without endangering her naval superiority. Each power has built a large number of submarines since the outbreak of war.

On July 31 the British fleets on all stations put to sea. Two days later 12 French ships passed Gibraltar into the Mediterranean, which was assigned as the special province of the French fleet. The Austrian fleet took refuge in Pola and the German fleet retired to the fortified ports on the North Sea and into the Baltic. By the middle of August commercial vessels passed freely between British ports and Scandinavia. On the more important sea lanes, the British, by a system of patrols assisted by wireless, soon made travel for the Allies almost as safe as in time of peace. Early in September there were nine British warships patrolling the North-Atlantic lane, and other trade routes were protected in the same way.

It has long been known that the German plans in case of war with England contemplated an absolute cessation of oversea commerce in German ships. When the war broke out Germany had about 4,000 vessels with a net tonnage of 3,100,000 tons engaged in deep-sea commerce. Her shipping on the Baltic amounted to 1,000 vessels of 400,000 net tons. The tonnage of vessels visiting Hamburg and Bremen was about 15,000,000 tons a year. Practically all of her deep-sea trade has been paralyzed by the British fleet. Germany imported food even in fat years for 15,000,000 of her population. Her exports amounted annually to $2,250,000,000. By destroying Germany's commerce and driving her ships from the sea, the British fleet is doing more in the long run to defeat Germany than the Allied armies.

On the other hand, the resources of the British and French empires have been brought to bear upon the situation in Europe through their ability to control the sea, and the armies of Australia, Canada, India and Africa have been transported across the sea without interruption; commerce has prospered; and industry has been little disturbed except for want of the hands absent in the Allied fleets and armies. In one quarter, however, Germany's navy has given her complete control of the sea. Her ships have ridden triumphant in the Baltic, and enabled her to carry on a prosperous trade with Scandinavia and

through Scandinavia with the outer world.

Operations in the North Sea.—The British fleet in the North Sea under Admiral Sir John Jellicoe has blockaded the German fleet in its harbors; but this is not true in the sense that there has been any effort on the part of the British to prevent German ships from leaving port. On the other hand every effort has been made to induce them to come out. The purpose of the blockade is to prevent any German ship, squadron or fleet from reaching the Atlantic, or even from remaining at large in the North Sea for more than a few hours, without encountering a superior British force. As thus limited and defined, the blockade has been effective. It consists essentially in watching the German ports by means of submarines, torpedo boats, light cruisers and aeroplanes which keep the admiral informed of the movements of battle units that leave port. The whereabouts of the British main fleet has remained a mystery. That it is somewhere within easy call of the scouts on the German coast is a certainty. The blockade is similar in character to that maintained for years by the British fleets of Nelson and Cornwallis off Toulon and Brest in the wars against Napoleon. The submarine and the floating mine have increased the perils of the blockader, but steam and wireless have acted as an offset in his favor. The net result is that the British have rid the sea more effectually of their enemy's cruisers within three months than in as many years when they fought Napoleon. As compared with the losses in merchant ships in the Napoleonic wars, the losses of British commerce have been small.

The actual operation of the system of blockade may be seen in the events of the naval battle in Helgoland Bight. Early in the morning of Aug. 28 the *Fearless* (3,360 tons, six 4-in. guns, 25 knots), the *Arethusa* (3,520 tons, two 6-in. and six 4-in. guns, 29 knots), the latter less than three days out of the builders' hands, and about 20 destroyers advanced on a course that would take them within seven miles of Helgoland, the great German naval base upon a small island off the mouth of the Elbe in the North Sea. The weather was fine but hazy; the sea so smooth that a submarine could be detected and a torpedo could be traced by the wake of its bubbles. At 8 a. m., six German destroyers were sighted, and at 8.30 the two squadrons were engaged. At the same time three German cruisers, the *Mainz* and *Coln* (each 4,280 tons, 12 4.1-in. guns, 27 knots) and the *Ariadne* (2,618 tons, 10 4.1-in. guns, 21 knots) appeared. In the action that followed the *Arethusa* was so severely handled that only one 6-in. gun could be fired and she withdrew into the friendly mist. After 55 minutes of strenuous repair work she steamed into action again. One of the German cruisers was soon in a bad plight; her mainmast and two funnels were shot away and she was blazing furiously amidships. About noon, Vice-Admiral Sir David Beatty with four battle cruisers, the *Lion*, *Queen Mary*, *Invincible*, and *New Zealand*, came upon the scene. The tonnage of these vessels varies from 17,250 to 27,000; their speed is from 25 to 28 knots; and each carries 8 12-in. or 8 13.5-in. guns and 16 4-in. guns. The two remaining German cruisers were soon destroyed and the British vessels withdrew. The Germans lost two torpedo boats also. This reconnaissance was undoubtedly planned with a view to drawing out the German fleet or a part of it.

Somewhat similar in character was the raid of the *Arethusa* and *Undaunted*, with seven aeroplanes and flotillas of destroyers and submarines, into Helgoland Bight, whence an aerial raid was made on the harbor of Cuxhaven on Christmas Day. Upon this occasion four aeroplanes were abandoned in the water. Two Zeppelins which attempted to attack the cruisers were put to flight by the guns of the *Undaunted* and *Arethusa*. The British ships remained for three hours off the enemy's coast without being molested by any surface vessel.

The long winter nights in the North Sea have favored evasion of the blockade and German ships have twice appeared in the early morning upon the English coast, first at Yarmouth on Nov. 3, when they slightly damaged the gunboat *Halcyon*, and again at

Scarborough, Hartlepool and Whitby on Dec. 16, when they bombarded these towns, killing 122 persons and wounding 549. On the latter raid the German cruisers remained about an hour on the English coast and then effected their escape.

The German Colonial Possessions.—On Nov. 8 Winston Churchill, First Lord of the British Admiralty, stated that the Allied navies had "convoyed and conveyed expeditions to attack and take every German colony which exists." The German colonies were confined to Asia and Africa. Their estimated area is 1,027,820 sq. miles; population, 14,546,000; and white population, about 20,000. A brief summary of the campaigns against these colonies follows:

Africa

Togo.—Area, 33,700 sq. miles; population, 1,000,000. Taken by an Anglo-French force in August.

Kamerun.—Area, 191,130 sq. miles; population, 3,000,000. Duala, the capital, was captured by an Anglo-French force in September. An aggressive campaign was carried on during September and October by the British, French and Belgians against different parts of the colony.

German Southwest Africa.—Area, 384,180 sq. miles; population, 120,000. British estimates placed the German force in this colony at 10,000 men, with 192 guns of various kinds and many machine guns. The Germans had constructed roads and railways with a view to invading British territory. The campaign against this colony has been carried on by British colonial forces of South Africa (see also "Rebellion in South Africa," *infra*). A border war was carried on throughout September. Luderitzbucht was occupied by a naval force on Sept. 18. The Germans raided Walfish Bay, a port held by Great Britain but surrounded by German territory. On Oct. 1 the Germans captured the survivors of two squadrons of South African mounted rifles and a section of Transvaal Horse Artillery after a hard fight.

German East Africa.—Area, 384,180 sq. miles; population, 19,999,000. The Germans had a strong force in this colony at the beginning of the war, which has given the Allies much trouble. On Sept. 9 a force of about 400 attacked Karonga in the British Protectorate of Nyasaland, but was driven back into East Africa.

Asia

Kiao-chau.—Area, 200 sq. miles; population, 33,000. Taken by Japan on Nov. 7 (see "The Siege of Tsingtau," *infra*).

Samoa.—Area, 1,000 sq. miles; population, 37,000. Apia, the capital, was taken by a force from New Zealand on Aug. 29.

Caroline Islands.—Area, 380 sq. miles; population, 36,000. Yap was occupied by the Australians in the latter part of September, and the wireless station was destroyed. On Oct. 7 it was announced that Japan had occupied Yap.

Bismarck Archipelago.—Area, 20,000 sq. miles; population, 188,000. On Sept. 12 the Australian Navy landed a force on the Island of New Pomerania, which, after 18 hours' brush fighting, captured the towns of Herbertshohe and Raboul. The Germans destroyed their wireless station.

Kaiser Wilhelm's Land.—Area, 70,000 sq. miles; population, 300,000. The town and harbor of Friedrich Wilhelm, the seat of government, was occupied by the Australian naval forces without opposition at the end of September.

Marshall Islands.—Area, 150 sq. miles; population, 20,000. It was announced on Oct. 6 that Japanese naval forces had occupied Jaluit, the chief island and seat of government, and that the occupation was for military and naval reasons and would not be permanent.

In a general European war the smaller states of Europe having colonies and island possessions are bound to remain at peace with the power that controls the sea or lose their islands and colonies. For this reason, if for no other, Holland, Belgium, Greece, Italy, Spain, Portugal and Denmark have either taken the side of Great Britain or observed neutrality toward her.

The German Cruisers.—Notwithstanding British control of the sea, however, Germany has been able to inflict severe damage to British shipping through the activity of a few cruisers which eluded for some time the naval patrols. On Aug. 2 the *Karlsruhe* (12 4.4-in. guns, 27 knots) was reported to be within 50 miles of Havana. On the morning of Aug. 7, while taking coal from the *Kronprinz Wilhelm*, she was chased by the British cruiser *Suffolk*. The chase continued from 11 o'clock in the morning until 5 p.m., when it was taken

up by the *Berwick* which had been called by wireless to the assistance of the *Suffolk*. By her superior speed, however, the *Karlsruhe* escaped both her pursuers. On Aug. 9 she took on 900 tons of coal at San Juan, Porto Rico, and sailed at 8:30 p.m. with lights extinguished. On Aug. 23 it was reported that she had sunk 15 British merchantmen in the Atlantic and had sent their crews into Teneriffe. On the 26th she took the *Vandyck* of the Lamport and Holt fleet, the ship and cargo being valued at $2,000,000. The *Karlsruhe* is still at large.

The *Emden* (3,592 tons, 10 4.1-in. guns, 24½ knots) appeared in the Bay of Bengal on Sept. 10 and by the 20th had captured six British ships, of which she sank five and sent one into Calcutta with the crews. On the 23d she bombarded Madras and set two oil tanks on fire. On Oct. 29 she entered the harbor of Penang, Straits Settlements, flying Japanese colors and with a fourth dummy funnel, and torpedoed and sank the Russian cruiser *Zhemtchug* and a French destroyer. On Nov. 9 she landed a small party on the Cocos Islands to destroy a wireless plant. The station warned the Australian cruiser *Sydney* (5,400 tons, 8 6-in. guns, 25 knots) of the whereabouts of the *Emden*. Before the landing party had returned, the *Emden* sighted the *Sydney* and put to sea, leaving the landing party behind. In the battle which followed the *Emden* was beaten, set on fire, and driven ashore. Her commander, Captain von Müller was among the survivors. In the final fight the *Emden* lost 200 killed and 30 wounded, the *Sydney* three killed and 15 wounded. In commenting upon this event the London *Times* said editorially:

> There are few episodes of modern naval history more remarkable than the meteoric career of the little *Emden*. Captain von Müller has captured 20 of our merchant steamers and sunk 17 of them. His ravages have cost us, at a rough estimate, about £2,200,000, or about half our total loss up to date in our mercantile marine. By entirely legitimate strategy he sank a Russian cruiser and a French destroyer. He has bombarded an Indian provincial capital, created a marked panic among certain classes of the native inhabitants of our Indian seaports, swept the Bay of Bengal clear of shipping, isolated the province of Burma for many days, and finished by audaciously endeavoring to destroy a wireless station. In all his exploits he has behaved with the most perfect courtesy, as the officers and crews of many of the ships he sank have testified. He has never taken a single life unnecessarily, except by accident has committed no outrage, and so far as we know has strictly observed the dictates of international law.

The *Königsberg* (3,348 tons, 10 4.1-in. guns, 23.6 knots) approached Zanzibar Harbor at 5 a.m., on Sept. 20 and attacked the British cruiser *Pegasus* (2,135 tons, 8 4-in. and 8 3-pounder guns, 20 knots), which was undergoing repairs, and soon put her out of action. This led to a thorough search for her in East African waters. On Oct. 30, she was discovered by the British cruiser *Chatham* (5,400 tons, 8 6-in. and 4 3-pounder guns, 25.5 knots) in shoal water six miles up the Rufigi River in German East Africa. Owing to her greater draft the *Chatham* could not reach her. The *Königsberg* was bottled up by sinking colliers in the channel.

Naval Battle off Coronel, Chile.—A British squadron of two armored cruisers, the *Good Hope* (14,100 tons, 2 9.2-in., 16 6-in., and 14 3-in. guns, 23 knots) and *Monmouth* (9,800 tons, 14 6-in. and 8 3-in. guns, 23 knots), and the light cruiser *Glasgow* (4,820 tons, 2 6-in. and 10 4-in. guns, 25 knots), commanded by Admiral Sir Christopher Cradock, met, off Coronel, Chile, on Nov. 3, the German armored cruisers *Scharnhorst* and *Gneisenau* (each 11,420 tons, 8 8.2-in., 6 5.9-in. and 20 3.4-in. guns, 22.5 knots) and the light cruisers *Dresden* (3,592 tons, 10 4.1-in. guns, 24.5 knots), *Nürnberg* (3,396 tons, 10 4.1-in. guns, 23.5 knots) and *Leipsic* (3,200 tons, 10 4.1-in. guns, 23 knots), commanded by Admiral von Spee. The squadrons came to fighting range shortly after sunset in a heavy sea. Fighting conditions, which had been in favor of the British before sunset, were now against them, for their ships were shown in silhouette against the after-glow of the sun. At 7 p.m., the Germans opened fire at 12,000 yd. They got the range quickly and their

third broadside set fire to the fore part of the *Monmouth* and *Good Hope*, which burned until 7:45 when there was a tremendous explosion on the *Good Hope*. The *Monmouth* and *Good Hope* were sunk. The *Glasgow* escaped. The German losses were insignificant.

Naval Battle off the Falkland Islands.—When the news of the naval battle off Coronel reached England the Admiralty secretly sent out an adequate fleet under Vice-Admiral Sir Frederick Sturdee, which is believed to have consisted of two battle cruisers and four cruisers. Near the Falkland Islands this squadron was joined by the battleship *Canopus* and by the cruiser *Glasgow*, which had escaped at Coronel.

At 7:30 a.m. on Dec. 5 the British squadron sighted the German squadron of five ships off the Falkland Islands, about 2,000 miles from the scene of the great battle off Coronel. The *Leipsic* was sunk early in the action. The *Scharnhorst*, Admiral von Spee's flagship, went down at the end of three hours, followed two hours later by the *Gneisenau*. The long afternoon of a midsummer's day, in latitude 48° south, remained for the pursuit of the *Nürnberg* and the *Dresden*. The *Nürnberg* was soon overhauled and destroyed; the *Dresden* escaped. The total British loss in the action was seven killed and four wounded.

Naval Losses.—The losses of the different belligerent navies since the beginning of the war have been as follows:

Great Britain

Aug. 6.—*Amphion,* light cruiser, 3,360 tons. Sunk by submarine in the North Sea; 131 lives lost.
Sept. 3.—*Speedy,* destroyer, 810 tons. Sunk by submarine in the North Sea.
Sept. 6.—*Pathfinder,* light cruiser, 2,940 tons. Sunk by submarine in the North Sea.
Sept. 7.—*Warrior,* armored cruiser, 13,660 tons. Stranded.
Sept. 17.—*Fisgard II,* school ship, 1,500 tons. Foundered; 21 lives lost.
Sept. 14.—AE-1, (Australian) submarine, 450 tons. Accident in Australian waters; 35 lives lost.
Sept. 20.—*Pegasus,* light cruiser, 2,135 tons. Battle with *Königsberg* in Zanzibar Harbor.
Sept. 22.—*Cressy, Hogue, Aboukir,* armored cruisers, each 12,000 tons. Sunk by submarines in the North Sea; 1,433 lives lost.
Oct. 15.—*Hawke,* light cruiser, 7,350 tons. Sunk by submarine in the North Sea; 471 lives lost.
Oct. 18.—D-5, submarine, 370 tons. Sunk by gunfire; 23 lives lost.
Oct. 18.—E-3, submarine, 550 tons. Sunk by gunfire; 25 lives lost.
Oct. 27.—*Audacious,* superdreadnought, 24,000 tons. Sunk by mine or submarine off north coast of Ireland; two lives lost.
Oct. 31.—*Hermes,* light cruiser, 5,600 tons. Sunk by submarine off Dover; 40 lives lost.
Nov. 1.—*Good Hope,* 14,100 tons, and *Monmouth,* 9,800 tons, armored cruisers. Battle off Coronel, Chile; 1,560 lives lost.
Nov. 11.—*Niger,* gunboat, 810 tons. Sunk by submarine off Deal, England.
Nov. 26.—*Bulwark,* battleship, 15,000 tons. Explosion in Thames off Sheerness; 738 lives lost.

Japan

Oct. 19.—*Takachiho,* cruiser, 3,700 tons. Sunk by submarine S90 off Tsingtau; 344 lives lost.
Nov. 11.—No. 33, torpedo boat. Sunk by mine off Tsingtau; six lives lost.

France

Oct. 23.—*Mousquet,* destroyer, 298 tons. Battle with *Emden* at Penang, Straits Settlements.

Russia

Oct. 11.—*Pallada,* armed cruiser, 7,775 tons. Sunk by mine in the Baltic.
Oct. 23.—*Zhemtchug,* cruiser, 3,130 tons. Battle with *Emden* at Penang, Straits Settlements.

Germany

Aug. 5.—*Königen Luise,* mine layer, 2,163 tons. Sunk by British destroyer *Lance* in the North Sea.
Aug. 9.—U5, submarine. Sunk by H. M. S. *Birmingham* in the North Sea.
Aug. 27.—*Magdeburg,* cruiser, 4,478 tons. Stranded and blown up by Russian warship in the Gulf of Finland; 17 lives lost.
Aug. 27.—*Kaiser Wilhelm der Grosse,* armed liner, 13,592 tons. Battle with H. M. S. *Highflyer* off the west coast of Africa.
Aug. 28.—*Mainz,* cruiser, 4,280 tons; *Coln,* cruiser, 4,280 tons; *Ariadne,* cruiser, 2,618 tons; two destroyers. Battle with British squadron in North Sea; 2,500 lives lost.

Aug. 28.—S90, torpedo boat, 396 tons. Sunk by British torpedo boat *Welland* off Chefoo.
Sept. 12.—*Spreewald,* armed liner. Battle with H. M. S. *Berwick* in North Atlantic.
Sept. 14.—*Cap Trafalgar,* armed liner. Battle with armed liner *Carmania* off the east coast of South America.
Sept. 15.—*Hela,* light cruiser, 2,003 tons. Sunk by submarine E9 in North Sea.
Sept. —.—*Mowe,* 640 tons. Battle with H. M. S. *Pegasus* off the east coast of Africa.
Oct. 7.—Destroyer. Sunk by submarine E9 in the Ems River.
Oct. 11.—Two destroyers. Battle with Russians in the Baltic.
Oct. —.—*Tsingtau,* gunboat, 166 tons. Interned, dismantled and sold at Shanghai.
Oct. —.—*Jaguar,* gunboat, 886 tons, and four other gunboats. Sunk at Tsingtau.
Oct. 19.—S90, submarine, 396 tons. Beached and blown up at Tsingtau.
Oct. 17.—Destroyers, S115, S117, S118, S119, total 1,652 tons. Battle with cruiser *Undaunted* and torpedo-boat flotilla off the Dutch coast.
Oct. 24.—Submarine. Rammed by destroyer *Badger* off the Dutch coast.
Nov. 4.—*Yorck,* cruiser, 9,350 tons. Sunk by mine in Jade Bay.
Nov. 8.—*Geier,* light cruiser, 1,604 tons. Interned by United States at Honolulu.
Nov. 9.—*Emden,* cruiser, 3,592 tons. Battle with Australian cruiser *Sydney* off Cocos Island, Indian Ocean; 200 lives lost.
Nov. 9.—*Königsberg,* cruiser, 3,348 tons. Bottled up by H. M. S. *Chatham* off Mafia Island, German East Africa.
Nov. 12.—Destroyer. Rammed by French torpedo boat off Westende, Belgium.
Nov. 13.—Submarine. Sunk by British cruiser off Belgian coast.
Nov. 13.—Submarine. Accident off Dover.
Nov. 17.—*Berlin,* cruiser. Interned at Trondhjem, Norway.
Nov. 22.—S124, destroyer, 463 tons. Rammed by Danish steamer off Falsterbo.
Nov. 23.—U18, submarine. Rammed by British policeship off west coast of Scotland.
Dec. 8.—*Scharnhorst,* cruiser, 11,420 tons; *Gneisenau,* cruiser, 11,420 tons; *Leipsic,* cruiser, 3,200 tons; *Nürnberg,* cruiser, 3,396 tons. Battle off Falkland Islands. 1,800 lives lost.
Dec. —.—*Friedrich Karl,* cruiser, 8,858 tons. Battle with Russians, 350 lives lost.
Dec. 15.—*Cormoran,* cruiser, 1,604 tons. Interned by United States at Guam.

Austria

Aug. 14.—Cruiser, *Aspern* type, 2,163 tons. Sunk by mine off Lussin.
Aug. 16.—*Zenta,* cruiser, 2,264 tons; *Zrinyi,* 14,268 tons. Battle with French fleet off Antivari.
Aug. 18.—Torpedo boat. Sunk by mine off Pola.
Sept. 11.—Torpedo boat. Sunk by mine in Adriatic, near Fusana.
Oct. 16.—One cruiser, six torpedo boats. Sunk by fire in arsenal at Monfalcone.
Oct. 24.—*Temes,* monitor, 433 tons. Sunk by Servian mine in Save River.
Oct. —.—*Kaiserin Elizabeth,* cruiser, 3,937 tons. Sunk to prevent capture off Tsingtau.
Dec.—.—*Beethoven,* training ship. Sunk by mine.

Turkey

Dec. 14.—*Messudieh,* battleship, 9,120 tons. Sunk by British submarine B11 in Dardanelles.

The Invasion of Luxemburg and Belgium.—Three routes suitable for the movements of great armies lead from Germany into France. The southernmost of these routes passes directly into French territory from Germany; the second and third pass respectively through the neutralized states of Luxemburg and Belgium. The German plans called for an invasion by each of these three routes. Since 1909 the attention of the world has been drawn by many magazine and newspaper articles to the existence of German strategic railways with stations and sidings for the detrainment of troops on the Belgian frontier of Germany. Mr. Balfour spoke of it in an article which he contributed to the German magazine *Nord und Süd;* General Bernhardi in his published writings scorned the idea that weak neutrals should interpose a barrier between strong belligerents; and the Belgians themselves showed by their military preparations that they had no delusions on the subject; but France, trusting too much to the potency of the magical words, "guaranteed neutrality," was very ill prepared for invasion through the neutralized states on her border.

In the early morning of Aug. 2, a German force, with armored trains, crossed the frontier of the Grand Duchy of Luxemburg, whose neutral-

ity was guaranteed by the Treaty of London of 1867. All of the great powers of Europe were parties to this treaty. The forces of Luxemburg, which consisted of about 430 men, made no resistance. It is reported, however, that the Grand Duchess attempted to bar the way by running her motor car across the road in the face of the German army. The Germans seized the railway and assumed control of the city of Luxemburg. A part of their forces passed on into France to attack the fortified town of Longwy.

By the Treaty of London of Nov. 15, 1831, the neutrality of Belgium was guaranteed by Austria, Russia, Great Britain, and Prussia. On Aug. 3, 1914, the Germans entered Belgian territory at Gemmenich. On the 4th they attempted, by a *coup de main*, to take Liège, the Birmingham of Belgium, an industrial city of 250,000 inhabitants on the Meuse near the German frontier. Liège was important to the Germans because the main roads and railways from Germany pass through the city. It was protected by a girdle of nine forts placed so as to command the bridges over the river, the river itself, and the railways. The Germans attacked in dense masses and failed; their losses were very great. On the 6th they brought their great 11-in. howitzers to bear upon the forts, and, to the astonishment of military men of other nations, drove the Belgians out of two of these forts on the first day. If the German heavy artillery, however, was a surprise to outside observers, the stubborn resistance of Liège was a genuine surprise to the Germans. On the 8th and 9th they occupied the city. Some of the forts, nevertheless, continued to resist for weeks and when further resistance was hopeless General Lehman, the Belgian commander, blew them up. While Liège held out the Germans were unable to pass troops in great numbers into Belgium and supply them. For several days, therefore, the invasion of Belgium was carried on by the German cavalry alone, and the Belgian army made a most creditable showing against unsupported cavalry. The resistance of Liège gave time for the French and British armies to concentrate on the Belgian frontier. The Germans masked the forts which continued to resist and their armies swept across Belgium, defeated the Belgian army at Louvain on Aug. 19 and drove it into Antwerp and on the 20th occupied Brussels, on which they levied a war contribution of $40,000,000. The German armies, estimated at nearly a million men, were now massing to the southwest of Brussels to attack the French and British armies which were gathering near the French-Belgian frontier.

While these movements were taking place, the armies had completed their mobilization. Many of the reserves of the German corps that attacked Liège joined after the fall of the city. The German mobilization was completed on Aug. 14, the French on or about the 17th. On this day it was announced that the British expeditionary force had been safely landed on French soil. The details of this movement, and even the fact itself, had been kept from the public by a loyal press. The King's farewell to his troops leaving England was dated Aug. 9.

The seat of the Belgian Government was removed from Brussels to Antwerp on Aug. 17. Field Marshal von der Goltz was appointed military governor of Belgium. On Aug. 25 Louvain was sacked and burned for alleged attacks by inhabitants of the city upon German troops.

The German Drive at Paris.—On the 20th of August the Germans had defeated the Belgian army and driven it off toward Antwerp; they had occupied Brussels; their cavalry and armored motor cars were sweeping over western Belgium; and they were ready to move into France with nearly a million men. At this time the French line of defense resting upon fortified places extended from Belfort, near the Swiss frontier, *via* Epinal, Toul, and Verdun to the fortified town of Mezières, which lies about 75 miles southeast of Brussels. The line was extended to the westward by the English army under Sir John French and by French troops brought up at the eleventh hour to drive back the German advance through Belgium. Thirty-six miles southeast of Brussels and 50 miles north of Mezières is the Belgian town of Namur. Trusting in

the strength of the fortifications of Namur the Allied armies had advanced to the east and west line Namur-Charleroi-Mons. The Allied line was really pivoted on Verdun and it will help us to a clear understanding of subsequent events if we use Mr. Simonds' simile and liken the movements of the Allied armies to the swinging of a huge door or gate with its pivot or hinges at Verdun.

The English army was on the left of the line at Mons. It was a part of the Allied plans for a French army to come up on the left of the English. Still further to the left was the French fortified town of Lille. On Aug. 22 Namur fell after a short resistance. On the 23d the French were defeated at Charleroi; the French failed to come up on the left of the English and the English had to retreat to avoid being turned around their left by the great German host. Lille surrendered, and the huge gate began to swing back toward Paris. Meanwhile a part of the German army of the Moselle, commanded by the Grand Duke Albrecht of Württemberg struck the French communications between Charleroi and Mezières. While the Allied armies faced the armies of Generals von Hausen and von Buelow in their front, the Grand Duke was striking at their right rear and five corps under General von Kluck were striking at their left rear. By successive turning movements around the Allied left, the Allies were forced back on Paris. On the 26th, the English were at Cambrai; on the 28th at St. Quentin; on the 1st of September, south of Mondidier; on the 3d the Germans were almost within sight of Paris. The retreat had been rapid but it had been orderly, and the Allies had preserved a continuous front from the English army on the left to the pivot at Verdun. Meanwhile General Joffre had been collecting an army of 500,000 men at Paris and preparing a battlefield along the Marne. On Sept. 3 the French Government was removed from Paris to Bordeaux.

As the Germans advanced on Paris their numbers had diminished while the numbers of the Allies had increased. In the middle of August they had 24 army corps against 26 Allied corps. The Belgian army was defeated and broken up, which reduced the number of the Allied corps to 23. Shortly before the battle of Mons-Charleroi, the Germans sent three corps east against the Russians, but the German concentration at this time was better than that of the Allies and they greatly outnumbered them in the decisive theater west of Verdun. The Germans sent six more corps east early in September, so that the advantage of numbers when the armies arrived near Paris was on the other side. Their casualties, too, had been very great, far in excess of the losses of the Allies; for they had recklessly attacked in close formation the defensive positions of their opponents.

The Allies had now reached their selected position, which extended from Paris eastward *via* Meaux, Montmirail, Sezanne, Vitry le Francois, and Revigny to Verdun. The English army passed through Paris, and on Sept. 3 took up its position near Lagny, south of the Marne, in the vast battle front. In their bold advance the Germans had constantly striven to get around the left of the Allies and drive them back upon the eastern fortresses and there capture them; for, we must remember, the great objective of the Germans was not the mere possession of the city of Paris, but rather the destruction of the Allied armies. But such strategy was no longer possible when the advantage of numbers was on the side of the Allies and when the Allied left rested on the great fortress of Paris, garrisoned by a half-million men. Moreover, it was necessary for the Germans to maintain a continuous front between von Kluck on the right and the Grand Duke Albrecht near Verdun. They could not hope to take Paris by a *coup de main;* they had neither time nor strength nor material to besiege it, for their heavy guns had not kept pace with their swift advance; but they might even yet by an energetic attack, such as their troops knew how to make, break the Allied lines between Paris and Verdun and cut off and isolate the fragments. The Parisians were astonished and mystified when, on Sept. 4 and 5, it became known that the German columns were moving away from Paris and concentrating to the southeast.

But the Allies did not await the German attack.

On the day before the great battle began, Great Britain, France and Russia signed an agreement not to conclude peace separately during the war, or to discuss peace conditions without the consent of each other.

The Battle of the Marne.—This battle began at sunrise of the 6th of September and ended on the 12th. The Allies' right rested on Verdun, their left on Paris. The battle front exceeded 140 miles. Two and a half million men were engaged, 1,600,000 Allies and 900,000 Germans. The German armies, as designated by the names of their commanders, stood in the following order from right to left: von Kluck, von Bülow, von Hausen, the Grand Duke Albrecht of Württemberg, and the Crown Prince. Beginning at Paris the Allied armies were arranged in the following order: the 6th French, British army, 5th French, 9th French, 4th French, and 3d French. The Allied armies were in their own country and behind them was a network of railways that supplied all their wants. The Germans were in a hostile country; their lines of communications stretched back 180 miles through Belgium to Germany; and the railways in their immediate rear were destroyed. Their left flank was secure, but their right was exposed to the attack of the Allies. To protect their communications in this direction, two corps facing west were placed behind the River Ourc which flows from the north into the Marne about 35 miles east of Paris.

Early in the morning of Sept. 6, the 6th French army advanced from Paris north of the Marne toward the Ourc. In the opinion of Sir John French the Germans realized about noon the powerful menace of the 6th French army against the flank of their columns moving southeast; and then began the famous retreat of General von Kluck which opened the Battle of the Marne. The British cavalry struck in around von Kluck's left flank, the French cavalry around his right. In his rapid retreat he abandoned his wounded, his artillery, ammunition trains, and stores. The retreat of von Kluck exposed the flank of von Bülow, whose retreat in turn exposed the flank of von Hausen. The tide had turned. The German armies were soon in full retreat closely pursued by the Allies. On the 12th and 13th the pursuit was brought to a sudden stop by the German army at bay on the hills north of the River Aisne. The losses of the Allies, as shown by the mute testimony of the battlefield, exceeded the German losses, a result to be expected in view of the fact that the Allies were on the offensive.

Mauberge fell on Sept. 7. The investment of the town began between Aug. 25 and 26. The first shell was fired on the 27th. Some of the forts resisted for two days; others surrendered in 24 hours. The town suffered severely in a bombardment which was continued with great violence for 12 days. More than 1,000 shells are reported to have fallen in one night near the railway station. The greater part of the garrison succeeded in evacuating the town.

The Battle of the Aisne.—The Battle of the Aisne was a continuation of the Battle of the Marne. The Aisne valley runs generally east and west, and consists of a flat-bottomed depression from a half-mile to two miles wide between plateaus 400 ft. above the bottom of the valley. Woods on the edges of the slopes, which are of varying steepness, cut off the view between the plateaus, except in patches. The Aisne is a sluggish, unfordable stream about 60 yd. wide near Soissons, crossed by numerous bridges which had been destroyed. The Germans held a very strong position on the northern plateau, well suited either for a delaying action or a defensive battle. They had begun to prepare this position while their troops were still advancing toward Paris, as an assurance against misfortune. Concrete platforms were built for heavy guns; and commodious trenches, with overhead protection against shrapnel, were constructed for the infantry. The right of the position rested on the Noyon hills west of the Oise, a little north of the place where the Aisne joins the Oise. From this point the line ran east along the Aisne for about 40 miles and then a little south by east by Rheims to Verdun. Four railways ran back from the position to Belgium, and a fifth

ran east and west at a convenient distance in rear of the lines.

It was uncertain for several days after the Allies arrived in front of this position whether the Germans were only making a temporary halt. During the first week the Germans, for the most part, merely resisted; then they began to strike back. The two armies were now deadlocked from the Noyon hills to the Swiss frontier and the operations assumed the character of a siege, the greatest in history, and destined to become still greater. Space, however, will not permit us to enter into the details of the siege or fortress warfare which ensued and which is still in progress at the end of the year.

The German lines turned north from Noyon and ran along the river Somme toward Belgium. The Allies began to send out forces, about Sept. 18, to get around the German right and strike the railways. Each expedition resulted in a pitched battle; hasty entrenchments grew into siege works, and by Oct. 7, the 25th day of the Battle of the Aisne, the lines had been prolonged to La Bassée, ten miles from the Belgian frontier and about 42 miles from the North Sea. The distance from Noyon to La Bassée is nearly 70 miles.

The Fall of Antwerp.—Meanwhile the Germans had laid siege to Antwerp. The Belgian army had been reorganized after it was driven into Antwerp and, by carrying on an aggressive campaign against the German communications, had occupied the attention of the greater part of three German corps. When the Germans sent two of these corps to the aid of von Kluck, the Belgians came out of Antwerp and compelled their recall. The German General Staff now determined to capture Antwerp and complete the conquest of Belgium.

The entire Belgian defense centered around Antwerp, which was considered to be one of the strongest fortresses in Europe. The population of the city was over 300,000. It was defended by two rings of forts, an inner ring of eight forts from two to 2½ miles from an old *enceinte* which encircled the city, and an outer ring of 15 forts, great and small, at a distance varying from six to nine miles from the *enceinte*. Four special features contributed to the strength of Antwerp: (1) the close proximity of the neutral Dutch frontier on the north and northwest, which reduced the front to be defended; (2) the existence of a large inundated area on the west and northwest which served the same purpose; (3) the position of the River Scheldt, which protected the city on the west and offered a secure passage through Holland for supplies from the sea; (4) the position of the River Nethe, which ran close in rear of the outer ring of forts and furnished an inundated area for the protection of the city on the southeast. To all this must be added the heroic spirit of the long-suffering Belgians, all of whom appear to have the fortitude to bear arms. Such was the city and such were the defenses which the Germans determined to take by assault and the terrors of bombardment, since the sea gate through Holland afforded an abundance of supplies to the besieged and the necessities of the military situation in Europe admitted of no delay.

On Sept. 28, the German 11-in. howitzers opened upon two of the forts of the outer ring south of the city. On the 29th the magazine of one of these blew up and the other was silenced and, on the following day, destroyed. The Germans concentrated their fire on the next two forts to the right. These forts were temporarily silenced on Oct. 1; the German infantry assaulted the Belgian infantry, which held the lines between the forts, and was repulsed, and the German artillery fire was then concentrated on the Belgian infantry, which was compelled to withdraw across the Nethe. On the 2d, the two forts were still resisting, but on the 3d they were finally reduced. On this day the neutral legations began to leave Antwerp. Late in the day British troops arrived and relieved the Belgians on the Nethe front. On the 4th the German artillery began to search the area in rear of the forts. On the 5th the situation was recognized as hopeless and the Belgian army began to withdraw to the west. On the 6th the Germans crossed the Nethe and the Belgian Government withdrew from Antwerp,

protected by the inner line of forts. At midnight on the 7th the German guns opened a haphazard fire on the city to terrorize the inhabitants and the city was given over to the horrors of bombardment, a fate which the great von Moltke had spared the city of Paris in 1871. On the 8th the Belgians destroyed their petrol and other valuable stores and sank the German ships in the harbor, and, during the following night, withdrew from the city. The Germans occupied Antwerp on the 9th and imposed a war contribution of $40,000,000. The inhabitants fled in all directions except the east and by their pitiful plight and tales of woe, won for the Allied cause the sympathy and the moral and material support of all the neutral nations. The Belgians estimated the German losses at 40,000 out of 125,000 besiegers.

The Battle of Flanders.—While the Germans were besieging Antwerp, they were sending huge masses of cavalry along the roads leading west to Dunkirk and Calais, followed by two armies which the French estimated at 16 corps, numbering over 500,000 men. The Allies made haste to meet this new danger. Their cavalry was first on the scene of operations. For three weeks troop trains and automobiles ruled supreme behind the Allied lines in northern France. Between Oct. 3 and 13, the British Army was brought from its position north of the Aisne to the new line between La Bassée and the vicinity of Ypres. The Belgian army, retreating from Antwerp, reformed in rear of French troops and took a place in line near Dixmude. A British infantry division and cavalry division which had been assisting the Belgians in their withdrawal joined the British left near Ypres. French troops filled up the gaps and a French division occupied the extreme left on the sea at Nieuport. Troops came from England, from India, and from all parts of France and by Oct. 20 the Allied line was fairly established from La Bassée to the sea. The line was roughly marked by the towns of Vermelles, Armentières, Ypres, Bixschoote and Dixmude, which became the scenes of fierce struggles.

The Germans began a great attack on the Allies in the vicinity of Ypres about the middle of October, in an effort to force their way to Calais. Heavy artillery arrived from Antwerp and assisted in the assault. The Germans, in heavy masses, threw themselves, regardless of losses, against the Allied lines, and failed. By Nov. 5 the attack was over. The Allies, on the defensive, lost 100,000 killed, wounded, and missing; the Germans, on the offensive, lost two or three times as many; so that not less than 300,000 men fell in the great battle.

The opposing forces, aggregating more than 4,000,000 men, were now arrayed in parallel lines of siege works from the North Sea to the Swiss frontier, a distance of 350 miles. The number of combatants on each side per mile of front probably varies from 3,000 to 10,000. Everywhere the lines are held in equal or greater strength than were the Russian lines at Port Arthur. Since the lines were established in Belgium in October neither side has been able to make an important gain. Along the Aisne the lines have remained practically unchanged since September; the Germans have been unable to besiege Verdun; while farther east in Alsace the fighting has been characterized by the alternate gain and loss of villages. In a certain sense each side is besieging the other along a front of 350 miles.

The Russian Campaign.—General mobilization was ordered in Russia on July 31 and in Germany on Aug. 1; German troops invaded Russian territory at Schwidden on Aug. 2. The Grand Duke Nicholas was made generalissimo of the Russian forces. Could Russia strike Germany in time to save France from destruction? French writers had placed the period of Russian mobilization as low as 21 days; German writers as high as 42 days. On the 17th day of mobilization (Aug. 16) the Russian armies began to move.

Three separate but mutually dependent theaters became the scenes of conflict in the eastern field of war. (1) Prussia east of the Vistula; the Russians invaded this theater but they have been unable to cross the Vistula. It will be noted that the important German cities of Graudenz and Thorn lie *east* of the Vistula,

while Dantzig is west of that river. (2) Russia west of the Vistula; the Germans invaded this theater but have been unable to capture Warsaw which lies *west* of the Vistula. (3) The Austrian province of Galicia which lies north of the Carpathian Mountains; the Russians invaded this theater but have been unable to cross the mountains in force into the heart of Austria. The northern and central theaters are characterized by vast, gloomy forests, lakes, swamps, bad roads, mud, level monotonous plains, wide rivers, a scarcity of railways, vast estates, and a down-trodden peasantry. Galicia lies on the northern slopes of the Carpathians. It is a rich agricultural district, and has some of the most productive petroleum fields in Europe.

At the beginning of the campaign two Russian armies advanced into East Prussia, defeated the Germans at Stalluponen, drove three German corps toward Posen, captured Allenstein, and invested Königsberg. The Germans brought troops from France, and on Sept. 1 inflicted a severe defeat on the Russians at Tannenberg, capturing 70,000 men, according to German reports. By the un-Napoleonic withdrawal of nine corps from France at a critical time, the Germans saved a few provincial towns in East Prussia, and as we shall see later, drove the Russians in the central and southern theaters back to Warsaw; but they wrecked their campaign in France, and threw away their only chance of success in the war.

Almost simultaneously with the Russian invasion of East Prussia, three or four Austrian armies invaded Russia from the side of Galicia. The Russians met these armies and drove them back, and, as the result of a week's fighting near Lemberg, in which they claimed to have captured 70,000 prisoners, the Russians defeated the Austrians on Sept. 2 and captured Lemberg and Halics (Sept. 3). A governor-general for the new Russian province of Galicia had already been appointed. The Russians now won a series of victories in rapid succession; they drove the Austrians west of the San River; crossed the San; captured Jaroslav (Sept. 21); invested the fortress of Przemysl; and then moved westward toward Cracow, sending raiding parties of Cossacks across the Carpathians into the heart of Austria. But before they could reach Cracow their career of victory was cut short by events in the central theater.

In the earlier part of the war, little news reached the world from this region. It was known that the Germans had invaded Russian territory and had advanced as far as Lodz. Their right rested on the Vistula near Cracow, their left on the Vistula north of Lodz. From this line the combined German and Austrian armies advanced eastward on Sept. 25. The Russian armies in both the central and southern theaters retired to the line of the Vistula and San rivers, which extend in a southeasterly direction from Warsaw. The Austrians relieved Przemysl. On the banks of the Vistula, 1,000,000 Russians faced 600,000 Germans under General von Hindenburg. Here on selected ground, the Russians had prepared to reënact the Battle of the Marne on a 160-mile front. They had assembled 10 cavalry divisions behind the Vistula, ready, at the appointed time, to pass around the German left and fall upon their rear. From Oct. 13 to Oct. 17, the Germans assaulted the Russian lines with indecisive results. On the 18th, while the attention of the combatants was fixed upon the strife, the 10 cavalry divisions, screened from the Germans by the Vistula, passed around the German left, crossed the river and fell upon their rear. A panic ensued, followed by a long and disastrous retreat. By the 20th the Russian success was complete in the vicinity of Warsaw. A progressive retirement of the armies to the south now followed. The Germans held on near Ivangorod until Oct. 27. Not until Nov. 5 did the Austrians give up Jaroslav and retire from the San. Four days earlier the German rear guard of the army on the left was on the Wartha, 100 miles west of Warsaw.

While the Russians were winning victories in Galicia, in September, they were being driven from East Prussia. By Sept. 27 they had retired into Russian territory and lay behind the Nieman River. The Rus-

sian commander, General Rennenkamp, then took the offensive, and, as the result of several battles, collectively called the Battle of Augustowo, he defeated the Germans between Sept. 28 and Oct. 3, and drove them into East Prussia.

On Nov. 12, seven Russian armies, estimated at 2,400,000 men, were closing in upon the Austrians and Germans, between the Baltic Sea and the Carpathian Mountains, and pushing them to the west and south. At this time the Russians held a line 100 miles long in East Prussia, parallel to the frontier, which ran from Stalluponen on the right *via* Goldap and Lyck to the vicinity of Soldau. At this point there was a gap. The line began again in Russian territory near the Vistula and ran generally parallel to the frontier, and at no great distance from it, to the vicinity of Cracow. The Russians held the German town of Pleschen about 65 miles northeast of Breslau. While there were gaps in this line, it was well nigh continuous for 350 miles. In Galicia, their armies, moving west, were about 75 miles from Cracow; and a Russian army approaching from the northeast was reported to be within 25 miles of the city. For the first time, the full strength of the Russian Empire was brought into effect in one grand concerted movement. The Russian General Staff had shown unexpected efficiency and the Russian soldiers had done much to redeem the reputation which they had lost in the war with Japan.

About the middle of November, the Germans, reinforced from the west, advanced southeast from Thorn, between the Vistula and the Wartha, and captured Lodz. At the end of the month they were fighting against superior numbers at Lodz; they were on the offensive in East Prussia; and they were apparently holding their own in the vicinity of Cracow. The Russians had overrun the greater part of Galicia, were besieging Przemysl, and were preparing to cross to the south side of the Carpathian Mountains.

The month of December was marked by the fierce efforts of the Germans to reach Warsaw and of the Russians to invest Cracow. In the last days of November the Germans broke through a Russian trap which had been set for them at Lodz and they began a new advance on Warsaw. On or about Dec. 8 the Russians evacuated Lodz and slowly retreated fighting toward Warsaw. On the 21st it was reported that they had stopped the German advance about 30 miles from Warsaw.

Early in December the Russians reached the vicinity of Cracow and began to shell the defenses from heights within eight miles of the city. It appears that they maintained their advanced position until after the 20th. Meanwhile the Austrians had begun to advance through the Carpathians against the Russian communications in Galicia. By the 24th the Russians had inflicted severe defeats on the Austrians and had driven them back through the mountains, beginning a new and rapid invasion of Bukowina.

At the end of four and one-half months the Russians and Germans were still fighting in the debatable ground between the two parallel lines of fortresses that defend the west frontier of Russia and the east frontier of Germany. All of these fortresses remain intact and unbesieged. The Russians occupy a part of East Prussia and the Germans occupy the western part of Russian Poland. The Russians also occupy the greater part of the Austrian province of Galicia and are besieging the Austrian fortress of Przemysl.

The Servian Campaign.—The Danube served as an effectual barrier against the Austrians along the northern border from Belgrade to the Rumanian frontier; and farther west the Save and Drina afforded the Servians some protection. On Aug. 16, 50,000 Austrians crossed the Save into northwest Servia and were severely defeated on the 18th by four Servian corps. The Servians followed up their victory by a second victory on the Jadar on the 20th and drove the Austrians across the Drina and the Save with the loss of 100 guns and 4,600 prisoners. One hundred and fifty thousand Servians now invaded Austria; and, after many delays, formed a junction with a Montenegrin army and besieged Sarajevo, the capital of Bosnia, where the Archduke Franz Ferdinand was assassinated. In No-

vember the Austrians reinforced their army, drove the Servians out of Austria, and invaded Servia. The advance of the Austrians into northwest Servia compelled the Servians to evacuate Belgrade, which was occupied by the Austrians after a siege of 126 days. The Austrians, unable to surround the city, had bombarded it from the north bank of the Danube and reduced it to ruins.

On Nov. 17, a dispatch from St. Petersburg stated that M. Tzemovitch, a special envoy from Servia, had arrived to ask the Czar for Russian assistance for his country whose army had been reduced from 300,000 to 100,000 men. The Austrian army continued its victorious advance after the fall of Belgrade and it appeared that Servia's conquest was assured unless succor came from abroad. On Dec. 5, however, the Servian army turned upon the invaders and overwhelmed them. On the 6th the entire Austrian army was in flight. The pursuit was vigorous and every day brought news of Servian successes. On the 10th they moved their capital from Nish back to Kraguievatz and on the 14th the Servian army reentered Belgrade after an absence of 12 days.

Montenegro in the War.—Montenegro declared war on Austria on Aug. 7 and the Montenegrin forces proceeded to invade Bosnia in conjunction with a Servian army and to assist the British and French to besiege Cattaro. The Montenegrins gained a victory on or about Sept. 22 at Goradza, Bosnia, 29 miles southeast of Sarajevo. On the 25th it was reported that they had occupied Mostar, the capital of Herzegovina, cutting the railway which furnished the only land communications with Cattaro. In November the Austrian reserves attacked the Montenegrins at Timor and Klobuk and were repulsed.

The Siege of Tsingtau.—Japan sent an ultimatum to Germany on Aug. 15 demanding that she withdraw her warships from Chinese and Japanese waters and deliver up by Sept. 15 the entire leased territory of Kiao-chau with a view to its eventual restoration to China. A reply was requested within a week, and as none came, Japan declared war on Aug. 23.

Kiao-chau, of which Tsingtau is the capital, lies on the east coast of the Chinese province of Shantung. Its population is about 33,000; its white population about 1,500. It was seized by Germany in November, 1897, and was formally transferred to Germany in March, 1898, on a 99-years' lease. Surrounding the district is a neutral zone of 30 miles with an area of 2,500 sq. miles and a population of 1,200,000. The Germans built a massive breakwater at Tsingtau, three miles long, and erected piers, docks and jetties until it surpassed the Russian port of Dalny. It is reported that the Germans spent $100,000,000 in improving Tsingtau.

There was an Austrian cruiser in the harbor of Tsingtau and Austria declared war on Japan on Aug. 25. The blockade of Tsingtau began on Aug. 27. The Japanese at once occupied seven adjacent islands to serve as a local base and began mine sweeping in the neighborhood. The Japanese troops (reported at 45,000) intended for the siege were safely landed in Laoshan Bay on Sept. 18, and were joined by a small British force on Sept. 24 under General N. Barnardiston. The Japanese casualties are reported to have been 1,078 up to Nov. 6 and in the final assaults, 440; British casualties, two. Tsingtau surrendered on Nov. 7. The garrison, which included many German business men who had taken refuge in the works, numbered about 4,600 men. The German gunboat *Jaguar*, attached to the fortress, destroyed a Japanese destroyer on Sept. 1; on Oct. 19 the German submarine S90 sank the Japanese cruiser *Takachiho* with 344 of her crew; on the same day the S90 was beached by her crew and blown up to escape capture. Finally on Nov. 11, four days after the surrender, the Japanese torpedo boat No. 33 was sunk by a mine while dragging for mines, and six men were lost. The Austrian cruiser *Kaiserin Elizabeth* took part in the defense and was sunk by her crew when her ammunition was exhausted.

Turkey in the War.—Turkey's attitude was doubtful from the beginning of the war. The German warships *Goeben* and *Breslau*, which escaped from the Allied fleets in the Mediterranean early in August, took refuge

in the Dardanelles. Turkey bought them and retained the German crews. The presence of these crews aboard the two vessels was the source of suspicion and misunderstanding. On Sept. 9, Turkey abolished the "capitulations" under which foreigners enjoyed certain rights and privileges in Turkish territory (see also III, *International Relations*). Finally on Oct. 30 the *Goeben* and other Turkish vessels bombarded Odessa and sank several Russian ships. On Nov. 1, Russia refused to accept, as too late, the Turkish explanations of the bombardment; on the 5th Great Britain declared war on Turkey and announced the annexation of the Turkish island of Cyprus which had been under British administration since 1878. On the following day France declared war. The Sheikh-ul-Islam proclaimed a Holy War against the Entente powers on Nov. 25; but the leaders of the Indian Mussulmans had already announced their intention to adhere to the Allies and there has been no rising of the Mohammedan subjects of the Allies.

In actual fighting the Turks have accomplished little. The Allied fleet has bombarded the forts on the Dardanelles; the Russian Black Sea fleet bombarded a Turkish fort at Trebizond on Nov. 17 and on the 18th disabled the *Goeben* off Sebastopol. In the Caucasus the Russians have driven the Turks to the west and south. Troops from India defeated the Turks near the head of the Persian Gulf on Nov. 15 and 17 and occupied Bagdad and Bassorah, the proposed terminus of the Bagdad Railway. They again defeated the Turks at Korna on Dec. 7 and captured the Turkish commander. The British now occupy the richest part of the delta from the junction of the Tigris and Euphrates to the sea.

Much interest has centered around the defense of the Suez Canal and of Egypt from Turkish aggression. To invade Egypt, the Turks must cross the Canal, which forms a continuous obstacle from the Red Sea to the Mediterranean. The position of the Canal lying in the midst of a flat sandy desert, its low banks, and the facility with which vessels may pass each other over the greater part of its length, are elements favorable to an easy and effective defense by war vessels patrolling the Canal. Thus far the British land forces, drawn largely from India and Australia, have been able to protect it. On Nov. 24 Italy announced that she would not tolerate the closing of the Canal.

Rebellion in South Africa.—At the beginning of the war in Europe, Premier Botha warned his countrymen that they must adhere to the cause of the British Empire. At a special session of the South African Parliament on Sept. 10, he asked the representatives to approve of the support which his Government had already promised to the British Government, and announced that the South African Government would send an expedition against German Southwest Africa. On Sept. 15, General Beyers, commanding the Union forces, resigned in protest against the intention to invade German Southwest Africa, where a number of irreconcilable Boers were settled. On Oct. 3, Gen. Christian de Wet, in attempting to address a meeting against Premier Botha's course, was interrupted by British sympathizers and the meeting was broken up. On Oct. 11 Lieut.-Col. Maritz, commanding the forces operating against German Southwest Africa, produced a German general's commission, arrested loyal officers, and joined the German forces. His commando numbered about 500 men.

The Government proclaimed martial law throughout the Union, and General Botha assumed command of the forces. Eighty rebels were captured on Oct. 15, and 40 more surrendered a few days later. On the 27th the Government announced that Generals de Wet and Beyers had gone over to the rebels, who had seized the town of Heilbron. Botha attacked Beyers on the same day at Rustenburg in the Transvaal, captured 80 of his men, and pursued him throughout the day. De Wet was defeated on Nov. 12, his followers deserted him, and a few days later he was slightly wounded and captured. General Beyers was drowned in attempting to cross a flooded stream and his followers dispersed.

V. THE NATIONAL ADMINISTRATION

THE PRESIDENT AND VICE-PRESIDENT

President.—Woodrow Wilson, Democrat, of New Jersey, inaugurated twenty-eighth President of the United States on March 4, 1913.

The President and Vice-President are elected for terms of four years by the state Electoral Colleges, whose membership is based on the Congressional apportionment. This apportionment is revised after each decennial census, as shown in the table in the YEAR BOOK for 1912 (p. 159). The official figures of the popular and electoral votes in the elections of 1908 and 1912 were given in the last issue of the YEAR BOOK (p. 158). The salary of the President is $75,000, with an allowance of $25,000 for traveling expenses.

Secretary to the President.—Joseph Patrick Tumulty, of New Jersey. The General Deficiency Appropriation Act continues the salary of the Secretary to the President at $7,500 per year, to which it was raised from the statutory amount of $6,000 in 1911 at the request of President Taft.

Vice-President.—Thomas Riley Marshall, Democrat, of Indiana, inaugurated Vice-President of the United States on March 4, 1913.

The Vice-President presides over the Senate, with no vote except in case of a tie. His salary is $12,000. The President *pro tempore* of the Senate, who presides in the absence of the Vice-President, is Senator James P. Clarke (Ark.).

EXECUTIVE DEPARTMENTS

Ten Cabinet officers, constituting the President's advisory council, each in charge of one of the great Departments of the Government, are nominated by the President and confirmed by the Senate, for a term subject to the President's pleasure. The salary of the Cabinet officers is $12,000 each.

With one exception, noted below, the members of the present Cabinet were nominated by the President and confirmed by the Senate on March 5, 1913. By Act of Congress, in the case of vacancy in office of President through the death or removal of both President and Vice-President, the Cabinet officers succeed to the Presidency in the order indicated below.

DEPARTMENT OF STATE

Secretary of State.—William Jennings Bryan, Neb.

Charged with negotiations relating to foreign affairs.

Assistant Secretary.—John E. Osborne, Wyo. $5,000.

Second Assistant Secretary.—Alvey A. Adee, D. C. $4,500.

Third Assistant Secretary.—William Phillips, Mass., $4,500.

The office of Third Assistant Secretary of State was vacant from the resignation of Dudley Field Malone in November, 1913, until the confirmation of Mr. Phillips on March 13. Mr. Phillips at the time of his appointment was secretary of the Corporation of Harvard University.

Director of the Consular Service.—Wilbur J. Carr, N. Y., $4,500.

Counselor.—Robert Lansing, N. Y. $6,000.

Mr. Lansing, whose residence is Watertown, N. Y., was confirmed on March 27, and took the oath of office on April 1, succeeding John Bassett Moore, who resigned on March 4.

Solicitor.—Cone Johnson, Tex. $5,000.

Mr. Johnson was confirmed on March 27, succeeding Joseph W. Folk (Mo.), who resigned on March 1 to become chief counsel of the Interstate Commerce Commission.

Bureau of Accounts.—Chief, William McNeir. $2,300.

Bureau of Appointments.—Chief, M. M. Shand, N. J. $2,100.

Bureau of Citizenship.—Chief, Richard W. Flournoy, Jr., Md. $2,100.

Consular Bureau.—Chief, Herbert C. Hengstler, Ohio. $2,250.

Diplomatic Bureau.—Chief, Sydney Y. Smith, D. C. $2,250.

Bureau of Indexes and Archives.—Chief, John R. Buck, Me. $2,100.

Bureau of Rolls and Library.—Chief, John A. Tonner, O. $2,100.

Division of Latin American Affairs.—Chief, William Heimke. $4,500.

Mr. Heimke was appointed in 1914, succeeding Boaz W. Long, appointed Minister to Salvador.

Division of Far-Eastern Affairs.—Chief, Edward T. Williams. $4,500.

Mr. Williams was appointed in 1914, succeeding Ransford S. Miller.

Division of Near-Eastern Affairs.—Asst. Chief, Albert H. Putney. $2,500.

Division of Information.—Chief, John H. James. $3,000.

Treasury Department

Secretary of the Treasury.—William Gibbs McAdoo, N. Y.

Charged with management of the national finances. He prepares plans for improvement of the revenue and support of the public credit; superintends collection of the revenue; grants warrants for all moneys paid from and into the Treasury; controls construction of public buildings; coinage and printing of money; and the administration of the life-saving, revenue cutter, and the public health service; *ex officio* a member of the Federal Reserve Board.

Assistant Secretaries.—Andrew J. Peters, Mass., in charge of customs; William P. Malburn, Col., in charge of fiscal bureaus; Byron R. Newton, N. Y., in charge of public buildings and miscellaneous. $5,000 each.

John Skelton Williams (Va.), Assistant Secretary of the Treasury in charge of fiscal bureaus, was appointed Comptroller of the Currency in January and took the oath of office on Feb. 2. He was succeeded by Charles S. Hamlin, formerly Assistant Secretary in charge of customs. Mr. Malburn, a lawyer in practice at Denver, Colorado, was confirmed as Assistant Secretary in charge of customs on March 12, and took the oath of office on March 24. Mr. Hamlin was appointed a member of the Federal Reserve Board in June and took the oath of office on Aug. 10. Mr. Malburn then became Assistant Secretary in charge of fiscal bureaus. Andrew J. Peters, of Boston, representative in Congress for the Eleventh District of Massachusetts, was confirmed as Assistant Secretary in charge of customs on Aug. 12 and took the oath of office on Aug. 18.

Supervising Architect.—Oscar Wenderoth, $6,000. Charged with superintending the construction and repair of public buildings.

Engraving and Printing.—Chief of Bureau, Joseph E. Ralph, Ill., $6,000. Produces all the securities and similar work of the Government printed from steel plates.

Secret Service.—Chief William J. Flynn, New York. $4,000. Charged with detection of counterfeiting, and similar frauds on the Government.

Comptroller of the Treasury.—George E. Downey, Ind. $6,000. Construes the laws relating to appropriations and methods of rendering and stating accounts.

Treasurer of the United States.—John Burke, N. D. $8,000. Charged with the receipt and disbursement of all public moneys deposited in the Treasury and sub-treasuries and in national bank depositories.

Comptroller of the Currency.—John Skelton Williams, Va. $12,000. Has supervision of the national banks, their examination and reports; the preparation and issue of national bank circulation; the redemption and destruction of national bank notes. *Ex officio* a member of the Federal Reserve Board.

The office of the Comptroller of the Currency was vacant from the resignation of Lawrence O. Murray in April, 1913, until the appointment of Mr. Williams, who was formerly Assistant Secretary of the Treasury in charge of fiscal bureaus. He was confirmed on Jan. 19 and took the oath of office on Feb. 2. The Comptroller of the Currency under the provisions of the Federal Reserve Act, draws a salary of $5,000 attached to the office proper, and $7,000 additional for his services as a member *ex officio* of the Federal Reserve Board.

Internal Revenue.—Commissioner, William H. Osborn, N. C. $6,000. General supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

The Mint.—Director, ————————. $5,000. General supervision of the mints and assay offices.

George E. Roberts resigned as Director of the Mint on Nov. 1. His successor has not been appointed.

Public Health Service.—Surg.-General Rupert Blue. $6,000. Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious diseases; supervision of the quarantine service of the United States, and of the marine hospitals.

War Department

Secretary of War.—Lindley Miller Garrison, N. J.

Charged with supervision of national defense, and army expenditures.

Assistant Secretary of War.—Henry S. Breckinridge, Ky. $5,000.

The General Staff.—Chief, Brig.-Gen. Hugh L. Scott. Charged with preparation of plans for the national defense, and the promotion of the efficiency of the Army.

Major-Gen. Wm. W. Wotherspoon succeeded Major-Gen. Leonard Wood on April 22. General Wotherspoon retired on Nov. 16 and General Scott was appointed Chief of Staff on Nov. 13.

The chiefs of the military bureaus are as follows:

Adjutant-General.—Brig.-Gen. Henry P. McCain. $8,000.

General McCain was confirmed on Aug. 27, succeeding Brig.-Gen. George Andrews.

Inspector-General. — Brig.-Gen. E. A. Garlington. $6,000.

Judge-Advocate-General. — Brig.-Gen. E. H. Crowder. $6,000.

Quartermaster-General.—Major-Gen. J. B. Aleshire. $6,000.

Surgeon-General.—Brig.-Gen. William C. Gorgas. $6,000.

General Gorgas was confirmed on Jan. 30, succeeding Brig.-Gen. G. H. Torney.

Chief of Engineers.—Brig.-Gen. Dan C. Kingman. $6,000.

Chief of Ordnance.—Brig.-Gen. William Crozier. $6,000.

Chief Signal Officer.—Brig.-Gen. George P. Scriven. $6,000.

Chief of Bureau of Insular Affairs.—Brig.-Gen. Frank McIntyre. $6,000.

Board of Engineers for Rivers and Harbors.—Col. William M. Black, president. A permanent body which investigates in their engineering and economic aspects all surveys and river and harbor improvements proposed by Congress.

Department of Justice

Attorney-General. — Thomas Watt Gregory (Tex.) took the oath of office as Attorney-General on Sept. 3, succeeding James Clark McReynolds (N. Y.), appointed a justice of the United States Supreme Court.

Thomas Watt Gregory was born in Crawfordsville, Miss., Nov. 6, 1861. He was graduated from the Southwestern Presbyterian University, Clarksville, Tenn., with the degree of A. B. in 1883, and, after a year of special study at the University of Virginia, from the law department of the University of Texas in 1885. From his admission to the bar in 1885 until 1913, he practiced law in Austin, Tex., his firm, since 1900, being employed by the state of Texas as counsel in many prosecutions under the anti-trust laws. In 1913, Mr. Gregory was appointed a special assistant to the Attorney-General of the United States in the investigation of the New York, New Haven & Hartford Railroad.

Represents the United States in all legal matters.

Solicitor-General.—John William Davis, W. Va. $10,000. Charged with the business of the Government in the Supreme Court and in state courts.

Assistant to the Attorney-General.—George Carroll Todd, N. Y. $7,000. Charged with matters arising under the federal anti-trust and interstate commerce laws.

Assistant Attorneys-General. — Seven in number; salary $5,000 each.

Post Office Department

Postmaster-General.—Albert Sidney Burleson, Tex.

Has direction and management of the Post Office.

First Assistant Postmaster-General.—Daniel C. Roper, S. C. $5,000. Charged with postmasters' appointments; salaries and allowance; city delivery service.

Second Assistant Postmaster-General.—Joseph Stewart, Mo. $5,000. Charged with railway adjustments, miscellaneous transportation, foreign mails, railway mail service, inspection, equipment.

Third Assistant Postmaster-General.—Alexander M. Dockery, Mo. $5,000. Charged with financial system, stamps, money orders, registered mails, classification of domestic mail matter, redemption, postal savings.

Fourth Assistant Postmaster-General.—James I. Blakslee, Pa. $5,000. Charged with rural mails, supplies, dead letters, post route maps.

Navy Department

Secretary of the Navy.—Josephus Daniels, N. C.

Charged with direction of the Navy and superintendence of construction, equipment, and employment of vessels of war.

Assistant Secretary.—Franklin D. Roosevelt, N. Y. $5,000.

General Board of the Navy.—The General Board is advisory to the Secretary of the Navy, and is composed of the following officers:

Admiral of the Navy, George Dewey, president; Rear-Adm., Charles J. Badger;

Rear-Adm., R. F. Nicholson; Rear-Adm., A. M. Knight, president, Naval War College; Rear-Adm., B. A. Fiske; Capt. A. G. Winterhalter; Capt. James H. Oliver; Capt. H. S. Knapp; Capt. John Hood; Capt. C. F. Hughes; Commander E. H. Campbell, secretary.

Bureau of Yards and Docks.—Chief, Civil Engineer H. R. Stanford. $6,000. Charged with the construction and maintenance of docks and naval buildings.

Bureau of Navigation.—Chief, Rear-Adm. Victor Blue. $6,000. Charged with the education and supervision of line officers and of enlisted men.

Bureau of Ordnance.—Chief, Rear-Adm. Joseph Strauss. $8,000. Charged with supervision of the Torpedo Station, magazines on shore, and with the manufacture of explosives, arms and equipment.

Bureau of Construction and Repair.—Chief Constructor, David W. Taylor. $6,000. Charged with the design, construction, care, and repair of ships.

Chief Constructor Taylor succeeded Richard M. Watt, who retired Dec. 14.

Bureau of Steam Engineering.—Engineer-in-Chief, Rear-Adm. Robert S. Griffin. $6,000. Charged with designing, building and repairing steam machinery for naval ships.

Bureau of Supplies and Accounts.—Paymaster-Gen. Samuel McGowan. $6,000. Charged with the supply of funds for disbursing officers, and the purchase of all naval supplies.

Paymaster-General McGowan was confirmed on June 27, succeeding Thomas J. Cowie.

Bureau of Medicine and Surgery.—Surgeon-General, William C. Braisted. $6,000. Control of naval hospitals and hospital ships.

Dr. Braisted was confirmed on Feb. 11, succeeding Surg.-Gen. Charles F. Stokes.

Judge-Advocate-General.—Capt. Ridley McLean. $5,000. Charged with supervision of all legal aspects of the Navy Department. Solicitor, Graham Egerton. $4,000.

Marine Corps.—Commandant, Major-Gen. George Barnett. $8,000.

General Barnett was confirmed on Feb. 18, succeeeding Maj.-Gen. William P. Biddle, retired.

Department of the Interior

Secretary of the Interior.—Franklin Knight Lane, Cal.

Charged with patents, pensions, public lands and parks, education, Indian affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Andrieus A. Jones, N. M. $6,000.

General Land Office.—Commissioner, Clay Tallman, Nev., $5,000. Charged with the survey, management and disposition of the public lands.

Patent Office.—Commissioner, Thomas Ewing, N. Y. $5,000. Administration of the patent laws, and supervision of the registration of trade-marks.

Pension Office.—Commissioner, Gaylord M. Saltzgaber, Ohio. $5,000. Supervision of adjudication of claims arising under laws granting Army or Navy service pensions.

Bureau of Indian Affairs.—Commissioner, Cato Sells, Tex. $5,000. Has charge of the Indian tribes of the United States (exclusive of Alaska).

Bureau of Education.—Commissioner, Philander P. Claxton, Tenn. $5,000. Collects statistics and general information regarding education; has charge of the schools for native Alaskan children; and administers the fund for colleges of agriculture and mechanic arts.

Geological Survey.—Director, George Otis Smith, Me. $6,000. Charged with classification of the public lands and examination of the geologic structure, mineral resources, and the mineral products of the national domain.

Reclamation Service.—Director, Frederick H. Newell, $7,500. Charged with the survey, construction, and operation of the reclamation and irrigation works in arid states, authorized by the act of June 17, 1902.

Bureau of Mines.—Director, Joseph A. Holmes, N. C. $6,000. To promote the mining industry of the United States, foster the safety of miners, and give attention to the treatment of ores and the use of explosives.

Department of Agriculture

Secretary of Agriculture.—David Franklin Houston, Mo.

Exercises supervision over agricultural industry, experiment stations, quarantine stations for imported cattle, inspection of foods and drugs, national forest reserves, and interstate game laws.

Assistant Secretary.—Carl Vrooman, Ill. $5,000.

Mr. Vrooman was confirmed as Assistant Secretary of Agriculture on Aug. 12, succeeding Beverly T. Galloway.

Weather Bureau.—Chief, Charles F. Marvin, D. C. $6,000. Charged with forecasting of weather for the benefit of agriculture, commerce and navigation.

Bureau of Animal Industry.—Chief, A. D. Melvin, Ill. $5,000. Conducts inspection of animals and meat food products; investigates communicable diseases and their prevention, and the breeding and feeding of animals.

Bureau of Plant Industry.—Chief, William A. Taylor. $5,000. Charged with the improvement of crops by breeding and selection, and the introduction of new plants and seeds to different parts of the United States.

Forest Service.—Chief, Henry S. Graves. $5,000. Charged with the administration of the national forests, the investigation of forest problems and encouragement of protecting growing timber.

Bureau of Chemistry.—Chemist and Chief, Carl L. Alsberg. $5,000. Charged with the analysis of agricultural products and fertilizers, and the investigation of the composition and adulteration of foods and drugs.

Bureau of Soils.—Chief, Milton Whitney, Md. $3,500. Charged with investigating soils in their relations to climate and organic life.

Bureau of Entomology.—Chief, L. O. Howard, N. Y. $4,000. Charged with dissemination of information regarding injurious insects affecting forests, crops and fruits, and means of their elimination.

Bureau of Biological Survey.—Chief, Henry W. Henshaw, Mass. $3,000. Investigates the economic relations of animal life. Charged with enforcing the bird and game laws.

Bureau of Crop Estimates.—Chief, Leon M. Estabrook. $3,000. Collects and collates agricultural statistics and issues crop reports and forecasts. This bureau was called the Bureau of Statistics until 1914.

Office of Experiment Stations.—Director, A. C. True, Conn. $4,000. Authorized to promote the interests of agricultural education and investigation.

Office of Public Roads.—Director, Logan W. Page, Mass. $3,000. Charged with investigating road making, road maintenance and road materials.

Office of Markets and Rural Organization.—Chief, Charles J. Brand. $3,000. Charged with the conduct of investigations of rural economics and coöperative organization.

This office was created by the Agricultural Appropriation Act of 1913.

Department of Commerce

Secretary of Commerce.—William Cox Redfield, N. Y.

Charged with promoting commerce, mining, manufacturing, shipping, fisheries, and transportation.

Assistant Secretary.—Edwin F. Sweet, Mich. $5,000.

Bureau of Corporations.—Commissioner, Joseph E. Davies, Wis. $5,000. Authorized to investigate the organization and conduct of any corporation or combination engaged in interstate or foreign commerce (except railroads).

Bureau of Foreign and Domestic Commerce.—Chief, Edward Ewing Pratt, N. Y. $4,000. Charged with the collection and publication of statistics of foreign and domestic commerce, the development of manufactures and markets therefor, by the publication of information, and the investigation of matters affecting the commercial interest of the United States.

Mr. Pratt was confirmed on Oct. 1, succeeding Albertus H. Baldwin, appointed commercial attaché at London.

Bureau of Lighthouses.—Commissioner, George R. Putnam, Ia. $5,000. Charged with the administrative duties relating to lighthouses and protective signals.

Steamboat Inspection Service.—Supervising Inspector-General, George Uhler, Penn. $4,000. Charged with the inspection of vessels, the licensing of officers, and the administration of laws relating to steam vessels and their officers.

The Census Office.—Director, William J. Harris, Ga. $7,000 during decennial census period, $6,000 regular salary. The duty of the Census Office is to take, compile and publish the decennial census of the United States; the quinquennial census of agriculture and manufactures; the deaths in registration areas; the statistics of cotton ginned, and of cotton consumed; the annual statistics of cities; and to make such other statistical investigations as Congress may order.

Coast and Geodetic Survey.—Superintendent, Otto H. Tittmann, Mo. $6,000. Charged with survey of coasts under the jurisdiction of the United States, and publication of charts covering these coasts.

Bureau of Fisheries.—Commissioner, Hugh M. Smith, D. C. $6,000. Charged with the propagation of useful food fishes, investigation of deep sea fishing grounds, and care of the Alaskan salmon fisheries and the Pribilof Islands seals.

Bureau of Navigation.—Commissioner, Eugene T. Chamberlain, N. Y. $4,000. Charged with superintendence of the commercial marine, issue of licenses, and collection of tonnage taxes.

Bureau of Standards.—Director, Samuel W. Stratton, Ill. $6,000. Charged with comparing and testing standards used in scientific investigations, commerce and educational institutions, with standards adopted or recognized by the Government.

Department of Labor

Secretary of Labor.—William Bauchop Wilson, Pa.

Charged with the duty of fostering, promoting and developing the welfare

of the wage earners of the United States.

Assistant Secretary.—Louis F. Post. $5,000.

Bureau of Immigration.—Commissioner-General, Anthony Caminetti, Cal. $5,000. Charged with administration of immigration laws.

Bureau of Naturalization.—Commissioner, Richard K. Campbell. $5,000. Charged with administration of the naturalization laws.

Bureau of Labor Statistics.—Commissioner, Royal Meeker, N. J. $5,000. Charged with the duty of acquiring and diffusing information concerning labor in its relations to capital and means of promoting prosperity among the laboring classes.

Children's Bureau.—Chief, Julia C. Lathrop, Ill. $5,000. Charged with the investigation of all matters pertaining to the welfare of children and child life.

Independent Bureaus and Institutions

Smithsonian Institution. — Secretary, Charles D. Walcott. $7,500. Established 1846, under the terms of James Smithson's will, for the "increase and diffusion of knowledge among men." The former is accomplished by promoting original scientific research, and the latter by publication and lectures.

National Museum.—Under the same management. Charged with preserving and utilizing objects of art, ethnological collections, geological and mineralogical specimens belonging to the United States.

Pan-American Union. — Director-General, John Barrett, Ore. $5,000. Established for the purpose of developing closer relations of commerce and friendship between the twenty-one republics of the Western Hemisphere.

Interstate Commerce Commission.—Seven members, each receiving an annual salary of $10,000; appointed for terms of seven years, one retiring each year. James S. Harlan, Ill., chairman; Edgar E. Clark, Ia.; Judson C. Clements, Ga.; Henry C. Hall, Col.; Charles C. McChord, Ky.; Balthasar H. Meyer, Wis.; Winthrop M. Daniels, N. J.; Secretary, George B. McGinty, salary, $5,000.

Mr. Hall, a lawyer of Colorado Springs, Colo., was confirmed on March 9 for the unexpired term (to Dec. 31, 1914) of Charles A. Prouty, who resigned to become director of the physical valuation of railroads undertaken by the Commission under the act of March 1, 1913; he has been reappointed. Mr. Daniels, at the time of his appointment chairman of the Public Utilities Commission of New Jersey, was confirmed on April 1 for the unexpired term (to Dec. 31, 1916) of John W. Marble, who died on Nov. 21, 1913. Mr. Harlan succeeded Mr. Clark as chairman, March 17.

Federal Reserve Board.—Created by the Federal Reserve Act of Dec. 23, 1913, for the supervision of the Federal reserve system. Composed of five appointive members and the Secretary of the Treasury and the Comptroller of the Currency *ex officio*. The members of the board, with the terms for which the appointive members have been commissioned, are as follows: Charles S. Hamlin, Mass., governor (two years); Frederick A. Delano, Ill., vice-governor (six years); Paul M. Warburg, N. Y. (four years); William P. G. Harding, Ala. (eight years); Adolph C. Miller, Cal. (ten years); William G. McAdoo, Secretary of the Treasury, *ex officio;* John Skelton Williams, Comptroller of the Currency, *ex officio*. The salary of the appointed members is $10,000 per annum. Mr. Hamlin, Mr. Harding and Mr. Miller were confirmed on July 6, and Mr. Warburg and Mr. Delano on Aug. 7; the appointive members took the oath of office on Aug. 10 (see also I, *American History*).

Civil Service Commission.—Commissioners, John A. McIlhenny, La., President, $4,500; Charles M. Galloway, S. C., $4,000; Hermon W. Craven, Wash., $4,000. Charged with the conduct of competitive examinations of applicants for the classified civil service.

Government Printing Office.—Public Printer, Cornelius Ford, N. J. $5,500. Charged with the printing, press work, and binding of all Government publications of every description.

Isthmian Canal Commission. — The Isthmian Canal Commission was abolished and the permanent government of the Panama Canal zone established on April 1. The Washington office of the Panama Canal is in charge of Major F. C. Boggs. (See also I, *American History.*)

The Library of Congress.—Librarian, Herbert Putnam, Mass. $6,000. Primarily a reference library, composed of numerous collections, presented and bought. It is the third largest collection in the world. Under the jurisdiction of Congress.

Commission of Fine Arts.—Established 1910, to pass upon sites and plans for future buildings, monuments, etc., in the District of Columbia. No compensation, but actual expenses allowed. Chairman, Daniel C. French, N. Y., sculptor; Vice-Chairman, Frederick Law Olmstead, Mass., landscape architect; Thomas Hastings, N. Y., architect; Cass Gilbert, N. Y., architect; Edwin H. Blashfield, N. Y., painter; Pierce Anderson, Ill.; Secretary, Col. Wm. W. Harts.

THE SIXTY-THIRD CONGRESS

The Senate.—A complete list of the members of the Senate in the Sixty-third Congress at the end of 1913 was given in the YEAR BOOK for 1913 (p. 168). The following changes occurred during 1914: The vacancy in the representation of Alabama was filled on May 22 by the seating of Francis S. White (Dem.), elected for the balance of the term expiring in 1915 in a special election on May 11 after a long controversy over the power of the Governor under the seventeenth amendment to fill the vacancy by appointment (see I, *American History*). The election of Blair Lee (Dem.) on Nov. 4, 1913, as Senator from Maryland for the balance of the term expiring in 1917 was involved in the same controversy; Mr. Lee was seated on Jan. 28, succeeding William P. Jackson (Rep.). Senator Augustus O. Bacon (Dem.) of Georgia died Feb. 14; he was succeeded temporarily by W. S. West (Dem.), appointed Feb. 25, and on Nov. 3 Thomas W. Hardwick (Dem.) was elected for the balance of the term, expiring in 1919. Senator William O. Bradley (Rep.) of Kentucky died May 23; he was succeeded by Johnson N. Camden (Dem.), appointed temporarily on June 16 and on Nov. 3 elected for the balance of the term expiring in 1915. The representation of parties at the end of the year was: Democrats, 53; Republicans, 42; Progressive, 1.

A complete list of the chairmen of the Senate committees in the Sixty-third Congress and the full membership of the more important committees were given in the YEAR BOOK for 1913 (p. 169).

House of Representatives.—A complete list of members of the House of Representatives in the Sixty-third Congress was given in the YEAR BOOK for 1913 (p. 171). The following changes occurred during 1914: The vacancy in the representation of Iowa was filled by the election of Henry Vollmer (Dem.) on Feb. 10. J. M. Curley (Dem.) of Massachusetts resigned on Feb. 4 on his election as mayor of Boston; he was succeeded by James A. Gallivan (Dem.), elected April 7. Henry D. Clayton (Dem.) of Alabama resigned on May 25 on his appointment as U. S. district judge for the middle and northern district of Alabama; he was succeeded by William O. Mulkey (Dem.), elected June 29. J. Harry Covington (Dem.) of Maryland resigned on Sept. 30 on his appointment as chief judge of the Supreme Court of the District of Columbia; he was succeeded by Jesse D. Price (Dem.), elected Nov. 3. Andrew J. Peters (Dem.) of Massachusetts resigned on Aug. 15 on his appointment as Assistant Secretary of the Treasury. William G. Sharp (Dem.) of Ohio resigned on July 23 on his appointment as Ambassador to France. Walter I. McCoy (Dem.) of New Jersey resigned on Oct. 3 on his appointment as judge of the Supreme Court of the District of Columbia; he was succeeded by Richard W. Parker (Rep.), elected in December. Thomas W. Hardwick (Dem.) of Georgia resigned on his election to the Senate on Nov. 3 (see *supra*); he was succeeded by Carl Vinson (Dem.), elected Nov. 3. William C. Murray (Dem.) of Massachusetts resigned on Sept. 29 on his appointment as postmaster at Boston. L. C. Dyer (Rep.) of Missouri was unseated on June 19 and Michael Gill (Dem.), his opponent in the election of 1912, was confirmed in his place. James T. McDermott (Dem.) of Illinois resigned on July 21 (see I, *American History*). The House lost by death during the year: Richard G. Bremner (Dem.) of New Jersey, Feb. 5, succeeded by Dow H. Drukker (Rep.), elected April 7; William Richardson (Dem.) of Alabama, March 31, succeeded by C. C. Harris (Dem.), elected May 11; Edwin A. Merritt, Jr. (Rep.), of New York, Dec. 4; and Sereno E. Payne (Rep.) of New York, Dec. 10. Vacancies existed at the end of the year in the representation of Illinois (1), Massachusetts (2), New York (2) and Ohio (1). The representation of the parties was: Democrats, 286; Republicans, 122; Progressive Republicans, 5; Progressives, 15; Independent, 1; vacancies, 6; total, 435.

A complete list of the chairmen of the House committees in the Sixty-third Congress and the full membership of the more important commit-

tees were given in the YEAR BOOK for 1913 (p. 173).

Second Session.—The second (first regular) session of the Sixty-third Congress opened on Dec. 1, 1913, and ended on Oct. 24, a total length of 328 days. It was exceeded in length only by the second session of the Fortieth Congress, which lasted from Dec. 2, 1867, to Nov. 10, 1868, a total of 345 days, but which, after July 27, met only to adjourn. On adjournment on Oct. 24, however, the Sixty-third Congress had been continuously in session, with the exception of a recess from Dec. 23, 1913, to Jan. 12, since April 7, 1913, a total of 567 days.

The total appropriations of Congress for the five years 1911-15 are given in the following table:

ANNUAL APPROPRIATIONS OF CONGRESS, 1911–15

APPROPRIATED	1st and 2d sessions, 61st Congress, 1911	3d session 61st Congress, 1912	1st and 2d sessions, 62d Congress, 1913	3d session 62d Congress, 1914	1st and 2d sessions, 63d Congress, 1915
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
To supply deficiencies	23,045,612.00	10,028,526.84	8,155,587.25	27,080,512.29	24,028,999.41
Legislative, executive, and judicial expenses	34,158,767.00	35,378,149.85	34,245,356.75	35,172,434.50	37,630,781.37
Sundry civil expenses	106,015,199.00	135,241,935.34	102,538,934.40	106,749,532.01	103,080,275.74
The army	95,440,568.00	93,374,755.97	90,958,712.98	94,266,145.51	101,019,212.50
The naval service	131,410,568.00	126,405,509.24	123,151,538.76	140,718,434.53	144,868,716.61
The Indian service	9,266,528.00	8,842,136.37	8,920,970.66	9,486,819.67	9,771,902.76
Rivers and harbors	49,380,541.00	30,883,419.00	40,559,620.50	51,118,889.00	26,989,000.00
Forts and fortifications	5,617,200.00	5,473,707.00	4,036,235.00	5,218,250.00	5,627,700.00
Military Academy	1,856,250.00	1,163,424.07	1,064,668.26	1,099,734.87	997,899.54
Postal deficiencies[1]	Indefinite	Indefinite	Indefinite	Indefinite	Indefinite
Pensions	155,758,000.00	153,682,000.00	165,146,145.84	180,300,000.00	169,150,000.00
Consular and diplomatic service	4,116,081.00	3,988,516.41	3,638,047.41	3,730,642.66	4,309,856.66
Department of Agriculture	13,487,636.00	16,900,016.00	16,648,168.00	17,986,945.00	19,865,832.00
District of Columbia	10,608,046.00	12,056,786.50	10,675,833.50	11,383,739.00	12,171,457.28
Reclamation fund	20,020,000.00	.....	.....	.....	.....
Miscellaneous	3,544,798.00	1,130,678.81	7,642,359.03	445,197.22	14,985,991.29
Totals by session acts (exclusive of the Postal Act)	663,725,794.00	634,549,561.40	617,382,178.34	684,757,276.26	674,497,625.16
Estimated permanent annual appropriations	69,999,595.12	68,575,924.12	72,556,424.12	66,840,664.12	70,479,407.00
	733,725,389.96	703,125,485.52	689,938,602.46	751,597,940.38	744,977,032.16
For the postal service.[2]					
For deficiencies in the postal service.[2]	243,907,020.00	258,634,463.00	269,704,599.00	285,376,271.00	313,364,667.00
	983,207.05	.....	1,056,789.17	942,854.26	3,413,219.96
Grand totals	978,615,617.01	961,759,948.52	960,699,990.63	1,037,917,065.64	1,061,754,919.12

[1] Grants from the Treasury. [2] Payable from the postal revenues.

The total number of bills and resolutions introduced during the second session was 10,698, bringing the total number for the Sixty-third Congress to the end of the second session to 27,911, of which 6,685 were Senate bills and 19,421 House bills. The principal bills of general interest en-

acted during the session were the following, the dates being those of the President's approval:

S. 48. To authorize the President of the United States to locate, construct, and operate railroads in the Territory of Alaska, and for other purposes. Public, No. 69, March 12.

S. 60. To provide for agricultural entry of lands withdrawn, classified, or reported as containing phosphate, nitrate, potash, oil, gas, or asphaltic minerals. Public, No. 128, July 17.

S. 110. To tax the privilege of dealing on exchanges, boards of trade, and similar places in contracts of sale of cotton for future delivery, and for other purposes. Public, No. 174, Aug. 18.

S. 474. To authorize the issuance of unqualified patents to public lands in certain cases. Public, No. 83, April 14.

S. 1294. To regulate the hours of employment and safeguard the health of females employed in the District of Columbia. Public, No. 60, Feb. 24.

S. 2318. Authorizing the appointment of envoys extraordinary and ministers plenipotentiary to each Paraguay and Uruguay. Public, No. 39, Dec. 6, 1913.

S. 2860. Providing a temporary method of conducting the nomination and election of United States Senators. Public, No. 111, June 4.

S. 4553. To authorize the appointment of an ambassador to Argentina. Public, No. 102, May 16.

S. 4628. Extending the period of payment under reclamation projects. Public, No. 170, Aug. 13.

S. 4966. Proposing an amendment as to section 19 of the Federal Reserve Act relating to reserves, and for other purposes. Public, No. 171, Aug 15.

S. 6192. To amend section 27 of an act approved Dec. 23, 1913, and known as the Federal Reserve Act. Public, No. 163, Aug. 4.

S. 6357. To authorize the establishment of a Bureau of War Risk Insurance in the Treasury Department. Public, No. 193, Sept. 2.

H. R. 1657. Providing for second homestead and desert-land entries. Public, No. 194, Sept. 5.

H. R. 1966. To amend an act entitled "An act to prohibit the importation and use of opium for other than medicinal purposes," approved Feb. 9, 1909. Public, No. 46, Jan. 17.

H. R. 1967. Regulating the manufacture of smoking opium within the United States and for other purposes. Public, No. 47, Jan. 17.

H. R. 5304. To increase the efficiency of the aviation service of the Army, and for other purposes. Public, No. 143, July 18.

H. R. 7138. To provide for raising the volunteer forces of the United States in time of actual or threatened war. Public, No. 90, April 25.

H. R. 7207. Granting to the city and county of San Francisco certain rights of way in, over and through certain public lands, the Yosemite National Forest, and Stanislaus National Forest, and certain lands in the Yosemite National Park, the Stanislaus National Forest, and the public lands in the State of California, and for other purposes. Public, No. 41, Dec. 19, 1913.

H. R. 7837. To provide for the establishment of Federal reserve banks, for furnishing an elastic currency, affording means of rediscounting commercial paper, and to establish a more effective supervision of banking in the United States, and for other purposes. Public, No. 43, Dec. 23, 1913.

H. R. 7951. To provide for coöperative agricultural extension work between the agricultural colleges in the several states, receiving the benefits of an act of Congress approved July 2, 1862, and of acts supplementary thereto, and the United States Department of Agriculture. Public, No. 95, May 8.

H. R. 8667. To promote the efficiency of the Naval Militia, and for other purposes. Public, No. 57, Feb. 16.

H. R. 9770. To levy and collect an income tax on railroads in Alaska, and for other purposes. Public, No. 144, July 18.

H. R. 11102. Providing that the marriage of a homestead entryman to a homestead entrywoman shall not impair the right of either to a patent after compliance with the law a year, to apply to existing entries. Public, No. 8, April 6.

H. R. 11745. To provide for certificate of title to homestead entry by a female American citizen who has intermarried with an alien. Public, No. 213, Oct. 17.

H. R. 13219. To provide, in the interest of public health, comfort, morals and safety, for the discontinuance of the use as dwellings of buildings situated in the alleys in the District of Columbia. Public, No. 202, Sept. 25.

H. R. 14233. To provide for the leasing of coal lands in the Territory of Alaska, and for other purposes. Public, No. 216, Oct. 20.

H. R. 14385. To amend section 5 of "An act to provide for the opening, maintenance, protection, and operation of the Panama Canal and the sanitation and government of the Canal Zone," approved Aug. 24, 1912. Public, No. 113, June 15.

H. R. 15503. Authorizing the appointment of an ambassador to the Republic of Chile. Public, No. 103, May 16.

H. R. 15613. To create a Federal Trade Commission, to define its powers and duties, and for other purposes. Public, No. 203, Sept. 26.

H. R. 15657. To supplement existing laws against unlawful restraints and monopolies, and for other purposes. Public, No. 212, Oct. 15.

H. R. 16296. To provide for issuing of patents for public lands claimed under the homestead laws by deserted wives. Public, No. 221, Oct. 22.

H. R. 18202. To provide for the admission of foreign-built ships to American registry for the foreign trade and for other purposes. Public, No. 175, Aug. 18.

H. R. 18891. To increase the internal revenue, and for other purposes. Public, No. 217, Oct. 22.

H. J. Res. 251. Justifying the employment by the President of the armed forces of the United States. Public Res., No. 22, April 22.

H. J. Res. 312. For the relief, protection and transportation of American citizens in Europe and for other purposes. Public Res., No. 41, Aug. 3.

H. J. Res. 314. For the relief, protection and transportation of American citizens in Europe and for other purposes. Public Res., No. 42, Aug. 5.

Third Session.—The third session of the Sixty-third Congress opened on Dec. 7 and recessed from Dec. 22 to 29. The only bill of public interest enacted was:

H. R. 6282. To provide for the registration of, with collectors of internal revenue, and to impose a special tax upon all persons who produce, import, manufacture, compound, deal in, dispense, sell, distribute, or give away opium or coca leaves, their salts, derivatives, or preparations, and for other purposes. Public, No. 223.

THE SIXTY-FOURTH CONGRESS

The Senate.—The terms of 32 Senators expire on March 3, 1915. Their successors were elected on Nov. 3, the first general election of Senators under the Seventeenth Amendment. The following is a complete list of the members of the Senate in the Sixty-fourth Congress:

THE SENATE

Democrats in Roman, 56; Republicans in *italic*, 39; Progressives in SMALL CAPS, 1; whole number 96. Salary, $7,500 per year and mileage of 20 cents per mile each way. Those marked * reëlected in 1914.

ALABAMA	
Term expires:	
1919.	J. H. Bankhead
1921.	Oscar W. Underwood

ARIZONA	
1917.	Henry F. Ashurst
1921.	Marcus A. Smith *

ARKANSAS	
1919.	Joe T. Robinson
1921.	James P. Clarke *

CALIFORNIA	
1917.	*John D. Works*
1921.	James D. Phelan

COLORADO	
1919.	John F. Shafroth
1921.	Chas. S. Thomas *

CONNECTICUT	
1917.	*George P. McLean*
1921.	*Frank B. Brandegee* *

DELAWARE	
1917.	*Henry A. du Pont*
1919.	Willard Saulsbury

FLORIDA	
Term expires:	
1917.	Nathan P. Bryan
1921.	Duncan U. Fletcher*

GEORGIA	
1919.	Thos. W. Hardwick
1921.	Hoke Smith *

IDAHO	
1919.	*W. E. Borah*
1921.	*James H. Brady* *

ILLINOIS	
1919.	J. Hamilton Lewis
1921.	*Lawrence Y. Sherman* *

INDIANA	
1917.	John W. Kern
1921.	Ben. F. Shively *

IOWA	
1919.	*W. S. Kenyon*
1921.	*A. B. Cummins* *

KANSAS	
1919.	W. H. Thompson
1921.	*Charles Curtis*

KENTUCKY	
Term expires:	
1919.	Ollie M. James
1921.	J. C. W. Beckham

LOUISIANA	
1919.	Jos. E. Ransdell
1921.	Robt. F. Broussard

MAINE	
1917.	Charles F. Johnson
1919.	*Edwin C. Burleigh*

MARYLAND	
1917.	Blair Lee
1921.	John W. Smith *

MASSACHUSETTS	
1917.	*Henry Cabot Lodge*
1919.	*John W. Weeks*

MICHIGAN	
1917.	*Chas. E. Townsend*
1919.	*Wm. Alden Smith*

MINNESOTA	
1917.	*Moses Edwin Clapp*
1919.	*Knute Nelson*

MISSISSIPPI
Term expires:
1917. John S. Williams
1919. Jas. K. Vardaman

MISSOURI
1917. James A. Reed
1921. William J. Stone *

MONTANA
1917. Henry L. Myers
1919. Thos. J. Walsh

NEBRASKA
1917. G. M. Hitchcock
1919. *Geo. W. Norris*

NEVADA
1917. Key Pittman
1921. F. G. Newlands *

NEW HAMPSHIRE
1919. Henry F. Hollis
1921. *Jacob H. Gallinger**

NEW JERSEY
1917. James E. Martine
1919. Wm. Hughes

NEW MEXICO
1917. *Thomas B. Catron*
1919. *Albert B. Fall*

NEW YORK
1917. Jas. A. O'Gorman
1921. *Jas. W. Wadsworth*

NORTH CAROLINA
Term expires:
1919. F. M. Simmons
1921. Lee S. Overman *

NORTH DAKOTA
1917. *P. J. McCumber*
1921. *Asle J. Gronna* *

OHIO
1917. Atlee Pomerene
1921. *Warren G. Harding*

OKLAHOMA
1919. Robert L. Owen
1921. Thomas P. Gore *

OREGON
1919. Harry Lane
1921. G. E. Chamberlain*

PENNSYLVANIA
1917. *George T. Oliver*
1921. *Boies Penrose* *

RHODE ISLAND
1917. *Henry F. Lippitt*
1919. *LeBaron B. Colt*

SOUTH CAROLINA
1919. B. R. Tillman
1921. Ellison D. Smith *

SOUTH DAKOTA
1919. *Thomas Sterling*
1921. Ed. S. Johnson

TENNESSEE
Term expires:
1917. Luke Lea
1919. John K. Shields

TEXAS
1917. Chas. A. Culberson
1919. Morris Sheppard

UTAH
1917. *Geo. Sutherland*
1921. *Reed Smoot* *

VERMONT
1917. *Carroll S. Page*
1921. *Wm. P. Dillingham* *

VIRGINIA
1917. Claude A. Swanson
1919 Thomas S. Martin

WASHINGTON
1917. MILES POINDEXTER
1921. *Wesley L. Jones* *

WEST VIRGINIA
1917. Wm. E. Chilton
1919. *Nathan Goff*

WISCONSIN
1917. *R. M. La Follette*
1921. Paul O. Husting

WYOMING
1917. *Clarence D. Clark*
1919. *F. E. Warren*

House of Representatives.—The following list of members of the House of Representatives in the Sixty-fourth Congress, elected on Nov. 3, though unofficial, is compiled by South Trimble, clerk of the House of Representatives. Two of the members-elect have died since the election: Edwin A. Merritt, Jr. (Rep.), of the 31st District of New York, on Dec. 4; and Sereno E. Payne (Rep.) of the 36th District of New York, on Dec. 10.

HOUSE OF REPRESENTATIVES

Democrats in Roman, 232; Republicans in *italic*, 192; Progressives in SMALL CAPS, 7; Independent in CAPS, 1; Socialist in *ITALIC CAPS*, 1; vacancies, 2; whole number 435. Those marked * served in the 63d Congress. Salary, $7,500 per annum and mileage of 20 cents per mile.

ALABAMA
1. O. L. Gray
2. S. H. Dent *
3. H. B. Steagall
4. F. L. Blackmon *
5. J. T. Heflin *
6. W. B. Oliver
7. J. L. Burnett *
8. E. B. Almon
9. George Huddleston
AT LARGE—J. W. Abercrombie *

ARIZONA
Carl Hayden *

ARKANSAS
1. T. H. Caraway *
2. W. A. Oldfield *
3. J. N. Tillman
4. O. T. Wingo
5. H. M. Jacoway *
6. S. M. Taylor *
7. W. S. Goodwin *

CALIFORNIA
1. WILLIAM KENT *
2. J. E. Raker *
3. *C. F. Curry* *
4. *Julius Kahn* *
5. J. I. NOLAN *
6. J. A. ELSTON
7. D. S. Church *
8. *E. A. Hayes* *
9. C. H. Randall
10. W. D. STEPHENS *
11. William Kettner *

COLORADO
1. B. C. Hilliard
2. *Charles B. Timberlake*
3. Edward Keating *
4. Edward T. Taylor *

CONNECTICUT
1. *P. D. Oakly*
2. *R. R. Freeman*
3. *J. Q. Tilson*
4. *E. J. Hill*
5. *J. P. Glynn*

DELAWARE
AT LARGE—*T. W. Miller*

FLORIDA
1. S. M. Sparkman *
2. Frank Clark *

3. Emmett Wilson *
4. W. J. Sears

GEORGIA

1. C. G. Edwards *
2. Frank Park *
3. C. R. Crisp *
4. W. C. Adamson *
5. W. S. Howard *
6. W. S. Wise
7. Gordon Lee *
8. S. J. Tribble *
9. Thomas M. Bell *
10. Carl Vinson
11. J. R. Walker *
12. D. M. Hughes *

IDAHO

AT LARGE—
Robert McCracken
A. T. Smith *

ILLINOIS

1. *M. B. Madden* *
2. *J. R. Mann* *
3. *W. W. Wilson*
4. J. T. McDermott *
5. A. J. Sabath *
6. James McAndrews *
7. Frank Buchanan *
8. Thomas Gallagher *
9. *F. A. Britten* *
10. *G. E. Foss*
11. I. C. COPLEY *
12. *C. E. Fuller*
13. *J. C. McKenzie* *
14. C. H. Tavenner *
15. *E. J. King*
16. C. U. Stone *
17. *J. A. Sterling*
18. *J. G. Cannon*
19. *W. B. McKinley*
20. H. T. Rainey *
21. *L. Wheeler*
22. *W. A. Rodenberg*
23. M. D. Foster *
24. *T. Williams*
25. *E. E. Denison*

AT LARGE—*B. M. Chipperfield*
W. E. Williams*

INDIANA

1. Charles Lieb *
2. W. A. Cullop *
3. W. E. Cox *
4. Lincoln Dixon *
5. R. W. Moss *
6. F. H. Gray *
7. *Merrill Moores*
8. J. A. M. Adair *
9. M. A. Morrison *
10. *W. R. Wood*
11. G. W. Rauch *
12. Cyrus Cline *
13. H. A. Barnhart *

IOWA

1. *C. A. Kennedy* *
2. *H. E. Hull*
3. *B. E. Sweet*
4. *G. N. Haugen* *
5. *J. W. Good* *
6. *C. W. Ramseyer*
7. *C. C. Dowell*
8. *H. M. Towner* *
9. *W. R. Green* *
10. *F. P. Woods* *
11. T. J. Steele

KANSAS

1. *D. R. Anthony* *
2. Joseph Taggart *
3. *P. P. Campbell* *
4. Dudley Doolittle *
5. G. T. Helvering *
6. J. R. Connelly *
7. Jouett Shouse
8. W. A. Ayres

KENTUCKY

1. A. W. Barkley *
2. D. H. Kinchloe
3. R. Y. Thomas, Jr.*
4. Ben Johnson *
5. Swagar Sherley *
6. A. B. Rouse *
7. J. C. Cantrill *
8. Harvey Helm *
9. W. J. Fields *
10. *J. W. Langley* *
11. *Caleb Powers* *

LOUISIANA

1. Albert Estopinal *
2. H. G. Dupré *
3. W. P. MARTIN
4. J. T. Watkins *
5. Riley Wilson
6. L. L. Morgan *
7. L. Lazaro *
8. J. B. Aswell *

MAINE

1. *A. C. Hinds* *
2. D. J. McGillicuddy *
3. *J. A. Peters* *
4. *F. E. Guernsey* *

MARYLAND

1. J. D. Price *
2. J. F. C. Talbott *
3. C. P. Coady *
4. J. C. Linthicum *
5. *S. E. Mudd*
6. D. J. Lewis *

MASSACHUSETTS

1. *A. T. Treadway* *
2. *F. H. Gillett* *
3. *C. D. Paige* *
4. *S. E. Winslow* *
5. *J. J. Rogers* *
6. *A. P. Gardner* *
7. M. F. Phelan *
8. *F. W. Dallinger*
9. *E. W. Roberts* *
10. P. T. Tague
11. *G. H. Tinkham*
12. J. A. Gallivan *
13. *W. H. Carter*
14. Richard Olney, 2d.
15. *W. S. Greene* *
16. *Joseph Walsh*

MICHIGAN

1. F. E. Doremus *
2. S. W. Beakes *
3. *J. M. C. Smith* *
4. *E. L. Hamilton* *
5. *C. E. Mapes* *
6. P. H. Kelley *
7. *L. C. Cramton* *
8. *J. W. Fordney* *
9. *J. C. McLaughlan* *
10. *G. A. Loud*
11. *F. D. Scott*
12. *W. F. James*
13. *C. A. Nichols*

MINNESOTA

1. *Sydney Anderson* *
2. *E. E. Ellsworth*
3. *C. R. Davis* *
4. C. C. Van Dyke
5. *G. R. Smith* *
6. *C. A. Lindbergh* *
7. *A. J. Volstead* *
8. *C. B. Miller* *
9. *Halvor Steenerson* *
10. THOMAS D. SCHALL

MISSISSIPPI

1. E. S. Candler *
2. H. D. Stephens *
3. B. G. Humphreys *
4. T. U. Sisson *
5. S. A. Witherspoon *
6. B. P. Harrison *
7. P. E. Quin *
8. J. W. Collier *

MISSOURI

1. J. T. Lloyd *
2. W. W. Rucker *
3. J. W. Alexander *
4. C. F. Booher *
5. W. P. Borland *
6. C. C. Dickinson *
7. C. W. Hamlin *
8. D. W. Shackleford *
9. Champ Clark *
10. *J. E. Meeker*
11. W. L. Igoe *
12. *L. C. Dyer*
13. W. L. Hensley *
14. J. J. Russell *
15. P. D. Decker *
16. T. L. Rubey *

MONTANA

AT LARGE—J. M. Evans *
Tom Stout *

NEBRASKA

1. *C. F. Reavis* *
2. C. O. Lobeck *
3. D. V. Stephens *
4. *C. H. Sloan* *
5. A. C. Shallenberger *
6. *M. P. Kinkaid* *

NEVADA

AT LARGE—*E. E. Roberts* *

NEW HAMPSHIRE

1. *C. A. Sulloway*
2. *E. H. Wasson*

NEW JERSEY

1. *W. J. Browning* *
2. *Isaac Bacharach*
3. T. J. Scully *
4. *E. C. Hutchinson*
5. *J. H. Capstick*
6. A. C. Hart *
7. *D. H. Drukker* *
8. *E. W. Gray*
9. *R. W. Parker*
10. *Fred Lethbach*
11. J. J. Eagan *
12. J. A. Hamill *

NEW MEXICO

AT LARGE—*B. C. Hernandez*

NEW YORK

1. Lathrop Brown *
2. C. P. Caldwell
3. Jas. V. Flynn
4. H. H. Dale *
5. J. P. Maher *
6. *F. W. Rowe*
7. J. J. Fitzgerald *
8. D. J. Griffin *
9. *O. E. Swift*
10. *R. L. Haskell*
11. D. J. Riordan *
12. *M. M. LONDON*
13. G. W. Loft *
14. M. F. Farley
15. M. F. Conry *
16. Peter Dooling *
17. J. F. Carew *
18. T. G. Patten *
19. W. M. CHANDLER *
20. *Isaac Seigel*
21. G. M. Hurlburt
22. Henry Bruckner *
23. J. A. Goulden *
24. W. R. Oglesby *
25. *J. W. Husted*
26. *Edmund Platt* *
27. *C. B. Ward*
28. *R. B. Sanford*
29. *J. S. Parker* *
30. *W. B. Charles*
31. —— ——
32. *L. W. Mott* *
33. *H. P. Snyder*
34. *G. W. Fairchild* *
35. *W. W. Magee*
36. —— ——
37. *H. H. Platt*
38. *T. B. Dunn* *
39. *H. G. Danforth* *
40. *S. W. Dempsey*
41. C. B. Smith *
42. D. A. Driscoll *
43. *C. M. Hamilton* *

NORTH CAROLINA

1. J. H. Small *
2. Claude Kitchin *
3. George Hood
4. E. W. Pou *
5. C. M. Stedman *
6. H. L. Godwin *
7. R. N. Page *
8. R. L. Doughton *
9. E. Y. Webb *
10. *J. J. Britt*

NORTH DAKOTA

1. *H. T. Helgesen* *
2. *G. M. Young* *
3. *P. D. Norton* *

OHIO

1. *Nicholas Longworth*
2. A. G. Allen *
3. Warren Gard *
4. *J. E. Russell*
5. *N. E. Matthews*
6. *C. C. Kearns*
7. *S. D. Fess* *
8. J. A. Key *
9. I. R. Sherwood *
10. *R. M. Switzer* *
11. *Edward Ricketts*
12. C. L. Brumbaugh *
13. A. W. Overmyer
14. *S. H. Williams*
15. *W. C. Mooney*
16. *R. C. McCulloch*
17. W. A. Ashbrook *
18. *D. A. Hollingsworth*
19. *J. G. Cooper*
20. William Gordon *
21. Robert Crosser *
22. *H. I. Emerson*

OKLAHOMA

1. J. S. Davenport *
2. W. W. Hastings
3. C. D. Carter *
4. W. H. Murray *
5. J. B. Thompson *
6. Scott Ferris *
7. J. V. McClintic
8. *D. T. Morgan* *

OREGON

1. *W. C. Hawley* *
2. *N. J. Sinnott* *
3. *C. N. McArthur*

PENNSYLVANIA

1. *W. S. Vare* *
2. *G. S. Graham* *
3. *J. H. Moore* *
4. *G. W. Edmonds* *
5. *P. E. Costello*
6. *G. P. Darrow*
7. *T. S. Butler* *
8. *H. W. Watson*
9. *W. W. Griest* *
10. *J. R. Farr* *
11. J. J. Casey *
12. *R. D. Heaton*
13. A. G. Dewalt
14. *L. T. McFadden*
15. *E. R. Kiess* *
16. J. V. Lesher *
17. *B. K. Focht*
18. *A. S. Kreider* *
19. W. W. Bailey *
20. *C. W. Beales*
21. *C. H. Rowland*
22. *A. L. Keister* *
23. *R. E. Hopwood*
24. *W. M. Brown*
25. Michael Liebel
26. H. J. Steele
27. *S. T. North*
28. *S. H. Miller*
29. *S. G. Porter* *
30. *W. H. Coleman*
31. *J. M. Morin* *
32. *A. J. Barchfeld* *

AT LARGE—*T. S. Crago*
M. H. Garland
D. F. Lafean
John R. Scott

RHODE ISLAND

1. G. F. O'Shaunessy *
2. *W. R. Stiness*
3. *Ambrose Kennedy* *

SOUTH CAROLINA

1. R. S. Whaley *
2. J. F. Byrnes *
3. Wyatt Aiken *
4. J. T. Johnson *
5. D. E. Finley *
6. J. W. Ragsdale *
7. A. F. Lever *

SOUTH DAKOTA

1. *C. H. Dillon* *
2. *R. C. Johnson*
3. H. L. Gandy

TENNESSEE

1. *S. R. Sells* *
2. *R. W. Austin* *
3. J. A. Moon *
4. Cordell Hull *
5. W. C. Houston *
6. J. W. Byrns *
7. L. P. Padgett *
8. T. W. Sims *
9. F. J. Garrett *
10. K. D. McKellar *

TEXAS

1. Eugene Black
2. Martin Dies *
3. James Young *
4. Sam Rayburn *
5. H. W. Sumners *
6. Rufus Hardy *
7. A. W. Gregg *
8. J. H. Eagle *
9. G. F. Burgess *
10. J. P. Buchanan *
11. R. L. Henry *
12. Oscar Callaway *
13. J. H. Stephens *

14. J. L. Slayden *
15. J. N. Garner *
16. W. R. Smith *

AT LARGE—J. H. Davis
Jeff. McLemore

UTAH

1. *Joseph Howell* *
2. J. H. Mays

VERMONT

1. *F. L. Greene* *
2. *P. H. Dale*

VIRGINIA

1. W. A. Jones *
2. E. E. Holland *
3. A. J. Montague *
4. W. A. Watson *
5. E. W. Saunders *
6. Carter Glass *
7. James Hay *
8. C. C. Carlin *
9. *C. B. Slemp* *
10. H. D. Flood *

WASHINGTON

1. *W. E. Humphrey* *
2. *L. H. Hadley*
3. *A. Johnson* *
4. *W. L. La Follette* *
5. C. C. Dill

WEST VIRGINIA

1. M. M. Neely *
2. W. G. Brown *
3. Adam Littlepage
4. *H. H. Moss* *
5. *Ed. Cooper*

AT LARGE—*H. Sutherland* *

WISCONSIN

1. *H. A. Cooper* *
2. M. E. Burke *
3. *J. M. Nelson* *
4. *W. H. Stafford* *
5. *W. J. Cary* *
6. M. K. Reilly *
7. *J. J. Esch* *
8. *E. E. Browne* *
9. T. F. Konop *
10. *J. A. Frear* *
11. *I. L. Lenroot* *

WYOMING

AT LARGE—*F. W. Mondell* *

THE FEDERAL JUDICIARY

The United States Supreme Court.—Supreme Court justices are appointed for life and receive salaries of $12,500 per year, except the Chief Justice, whose salary is $13,000. The justices of the Supreme Court are:

	Born	App.
Edward D. White, La., Chief Justice	1845	1894
Joseph McKenna, Cal.	1843	1898
Oliver W. Holmes, Mass.	1841	1902
William R. Day, Ohio	1849	1903
Charles E. Hughes, N. Y.	1862	1910
Willis Van Devanter, Wyo.	1859	1910
Joseph Rucker Lamar, Ky.	1857	1910
Mahlon Pitney, N. J.	1858	1912
James C. McReynolds, Tenn	1862	1914
Clerk, James D. Maher, D. C.		$6,000
Marshal, J. M. Wright, Ky.		3,500
Reporter, Chas. H. Butler, N. Y.		4,500

Horace Howard Lurton, associate justice, died on July 12. James Clark McReynolds, Attorney-General of the United States, was confirmed as his successor on Aug. 29 and took the oath of office on Sept. 5 (see also I, *American History*).

United States Circuit Courts of Appeals.—The act of March 3, 1911 (*A. Y. B.*, 1912, p. 231), provides that there shall be in each judicial circuit a Circuit Court of Appeals, which shall consist of three judges, two of whom shall constitute a quorum; the Chief Justice and the associate justices of the Supreme Court assigned to each circuit, and the several district judges within each circuit, shall be competent to sit as judges of the circuit court of appeals within their respective circuits, in addition to the judges of the circuit courts abolished in 1912 (*A. Y. B.*, 1912, p. 231). There were 33 circuit judges on Dec. 31. The salary of circuit judges is $7,000.

United States District Courts.—The judicial districts into which the United States is divided are enumerated in the issue of the YEAR BOOK for 1913 (p. 175). On Dec. 31 there were 92 district judges in the United States, exclusive of the non-contiguous territories. There are two U. S. district judges in Hawaii and one in Porto Rico. The salary of district judges is $7,000.

Court of Claims.—Claims against the United States are adjudicated by a Court of Claims consisting of five judges appointed for life or during good behavior, the Chief Justice receiving a salary of $6,500 and the associate judges of $6,000. The Court is now constituted as follows:

Chief Justice.—Edward K. Campbell, appointed 1913.

Judges.—Charles B. Howry, appointed 1897.
Fenton W. Booth, appointed 1897.
Samuel S. Barney, appointed 1906.
George W. Atkinson, appointed 1905.

Court of Customs Appeals.—The tariff act of 1909 created a new court to hear appeals in custom cases to be called the Court of Customs Appeals, which is constituted as follows:

Presiding Judge.—Robert M. Montgomery, Michigan.

Associate Judges.—James F. Smith, California; Orion M. Barber, Vermont; Marion De Vries, California; George E. Martin, Ohio.

THE DIPLOMATIC SERVICE

ACCREDITED BY UNITED STATES — ACCREDITED TO UNITED STATES

Ambassadors

Country	Appointed		Commissioned
Argentina	Frederic Jesup Stimson	1914	Rómulo S. Naón 1912
Austria-Hungary	Frederic C. Penfield	1913	Constantin Theodor Dumba 1913
Brazil	Edwin V. Morgan	1912	Domicio da Gama 1911
Chile	Henry P. Fletcher	1909	Señor Don Eduardo Suárez 1911
France	William G. Sharp	1914	J. J. Jusserand 1903
Germany	James W. Gerard	1913	Count J. H. von Bernstorff 1908
Great Britain	Walter H. Page	1913	Sir Cecil Arthur Spring-Rice 1913
Italy	Thomas N. Page	1913	Count Vincenzo Macchi di Cellere 1914
Japan	George W. Guthrie	1913	Viscount Sutemi Chinda 1912
Mexico	———	———	——— ———
Russia	George T. Mayre	1914	George Bakhméteff 1911
Spain	Joseph E. Willard	1913	Señor Don Juan Riaño y Gayangos 1910
Turkey	Henry Morgenthau	1913	A. Rustem Bey 1914

Ministers Plenipotentiary

Belgium	Brand Whitlock	1913	E. Havenith	1911
Bolivia	John D. O'Rear	1913	Señor Don Ignacio Calderon	1904
China	Paul S. Reinsch	1913	Kai Fu Shah	1914
Colombia	Thaddeus A. Thompson	1913	Señor Don Julio Betancourt	1912
Costa Rica	Edward J. Hale	1913	Señor Don Roberto B. Mesén	1914
Cuba	William E. Gonzales	1913	Carlos Manuel de Céspedes	1914
Denmark	Maurice Francis Egan	1907	Constantin Brun	1913
Dominican Republic	James M. Sullivan	1913	Señor Don Eduardo R. Soler	1914
Ecuador	Charles S. Hartman	1913	Señor Don Gonzalo S. Cordova	1913
Greece and Montenegro	Garrett Droppers	1914	A. Schliemann	1914
Guatemala	William H. Leavell	1913	Señor Don Joaquin Mendes	1912
Haiti	Arthur Bailly-Blanchard	1914	Solon Ménos	1914
Honduras	John Ewing	1913	Dr. Alberto Membreno	1912
Netherlands and Luxemburg	Henry Van Dyke	1913	W. L. F. C. Van Rappard	1914
Nicaragua	Benjamin J. Jefferson	1913	Sen. Don Emiliano Chamorro	1913
Norway	Albert J. Schmedemann	1913	H. M. Bryn	1910
Panama	William J. Price	1913	Sen. Don Eusebius A. Morales	1913
Paraguay	Daniel F. Mooney	1914	Héctor Valázquez	1913
Persia	John L. Caldwell	1914	Mehdi Khan	1914
Peru	BentonMc Millan	1913	Frederico A. Pezet	1912
Portugal	Thomas H. Birch	1913	Viscount de Alte	1902
Roumania, Servia and Bulgaria	Charles J. Volpicka	1913	——— ———	
Salvador	Boaz W. Long	1914	Señor Don Francisco Duenas	1913
Siam	———	———	Phya Prabha Karavongse	1914
Sweden	Ira Nelson Morris	1914	W. A. F. Ekengren	1911
Switzerland	Pleasant A. Stovall	1913	Dr. Paul Ritter	
Uruguay	Nicolay A. Grevstad	1914	Dr. Carlos Maria de Pena	1911
Venezuela	Preston McGoodwin	1913	Señor Don Santos A. Dominici	1914

THE CONSULAR SERVICE

Consuls General.—The consular service of the United States was reorganized by act of Congress of April 5, 1906, amended by the act of May 11, 1908. Under this reorganization there are 57 consuls general, divided into seven classes, the salaries and distribution being as follows:

Class 1, $12,000, two (London and Paris); Class 2, $8,000, six (Berlin, Habana, Hamburg, Hong-kong, Rio de Janeiro, and Shanghai); Class 3, $6,000, eight (Calcutta, Cape Town, Constantinople, Mexico City, Montreal, Ottawa, Vienna, and Yokohama); Class 4, $5,500, 12; Class 5, $4,500, 17; Class 6, $3,500, nine; Class 7, $3,000, three.

Consuls.—The United States consuls are divided into nine classes, with salaries ranging from $8,000 down to $2,000. There is but one consul of Class 1, located at Liverpool, Eng., at a salary of $8,000, and but one of Class 2, at Manchester, Eng., at a salary of $6,000.

There are in all 241 consuls, located in the principal cities of the various countries of the world, and, in addition, 224 consular agents.

CIVIL SERVICE

CLINTON ROGERS WOODRUFF

Federal Civil Service.—While the year has been one of very marked gain in the programme of the merit system in a number of directions, there have been some recessions, though none so important as those of 1913 (*A. Y. B.*, 1913, p. 180). The number of positions affected by these recessions is trifling, however, compared to the whole number of competitive positions. The most important is found in the Legislative, Executive and Judicial Appropriation Act of July 16, which created the positions of "commercial attaché," 14 in number, "to be appointed by the Secretary of Commerce after examination to be held under his direction to determine their competency." It is anticipated, however, that the Civil Service Commission will be called upon to conduct these examinations. An attempt to remove assistant postmasters from the competitive class was defeated by the disapproval of the Postmaster-General and the opposition of the President.

Progress during the year has been notable in the extension of the work of the Federal Commission to higher grade positions, particularly to the large number of responsible technical positions in connection with the valuation of the property of common carriers under the supervision of the Interstate Commerce Commission. This valuation work requires the employment of engineers, architects, real-estate appraisers, accountants, inspection experts, and other classes of experts to ascertain the cost of reproducing anew the railroads and other property of every railway company of the United States. About 500 appointments have been made thus far.

An act of March 4, 1913, provided for the establishment and maintenance of a system of efficiency ratings in the departments at Washington by the Civil Service Commission, and instructed the Commission to investigate and report to the President, with recommendations, on the administrative needs of the service with respect to personnel. Very marked economies have been effected under this provision and a larger appropriation granted. The annual savings amount to several times the appropriation.

The work of the Federal Commission is growing very rapidly, due to the growth of governmental activities and their extension to new fields of endeavor. There has been a very marked increase in the number of applicants for technical positions. Under the advanced methods of non-assembled tests there has been a very gratifying improvement also in the character of their attainments. The number of applicants for ordinary positions is undergoing a marked increase. In a recent examination for the railway mail service held throughout the United States, 26,000 applications were received. Five thousand applications were received for one examination for the New York post office on comparatively short notice.

The increase in the number and variety of technical examinations and the increase in the number of applicants have led to a very marked increase in the work of the Commission, not only in bulk but in the difficulty of its administrative problems. If the Commission is to meet these increased demands it must be given largely increased appropriations. The work of the Commission tends to increase not merely in quantity but in complexity and difficulty.

Notwithstanding the rapid growth of the services rendered by the Federal Civil Service Commission, calling for a greatly increased clerical force, but $52,270 of the additional appropriation of $126,050 requested was granted. A portion of the increase ($16,890) was for the examination of fourth-class postmasters under the ruling of President Wilson (*A. Y. B.*, 1913, p. 180) and $15,000 for efficiency ratings.

New York City.—As a further example of the tendency to extend civil-service rules to higher positions should be mentioned the classification by the New York City Commission of the six secretaries to the Board of Estimate and Apportionment and the consequent attempt to apply civil pro-

cedure to higher positions in the municipal service. In expressing its hearty approval of this action, the New York Civil Service Reform Association said it wished "to record its belief that few commissions have given such careful consideration to the merits and demerits of a proposed change in the classification as has your Commission in this particular case." The action taken would seem to be the first step in meeting the opportunity which these examinations present.

The New York Municipal Civil Service Commission worked out plans for the examination of director of public-health publicity in connection with the Department of Health, the first non-assembled test attempted by the New York Commission. It also drafted an advertisement for the secretary of the Market Committee of the Board of Estimate and Apportionment, throwing open this examination to women as well as men.

Another event of significance was the change of the rules providing that hereafter a first-grade clerk is eligible for promotion after one year in the service and a second-grade clerk after two years. The shortening of the period of eligibility for promotion will encourage able and ambitious clerks to remain in the service and as the raw material for employees in the higher positions is drafted from these grades such a rule ought to have a good effect upon the whole clerical service.

The most far-reaching movement in the civil service of New York is the attempt to standardize duties and to classify positions based upon a description of the duties. The New York Commission is coöperating in this direction with the Bureau of Standards that a sounder classification of the duties may be established. This tendency is general throughout the country and if it results in a sound efficiency record system, it will greatly aid the proper enforcement of the civil-service laws and lead to a sound system of promotion.

National Assembly of Civil Service Commissions.—The responsiveness of the merit system to the increasing demands for efficiency in administration was the keynote of the annual meeting of the National Assembly of Civil Service Commissions in Pueblo in June. Beginning with competitive scholastic examinations for the appointment of clerks the system has been extended until it has been made applicable for testing fitness for highly technical and administrative positions other than those of elective officers, heads of departments and the principal assistants of the executive.

In addition to their functions as examining bodies some of the commissions are now charged with making efficiency studies, simplifying the organization of the executive service, discovering needless duplications of work, effecting economies and promoting the effectiveness of the public work. Dr. Henry Moskowitz, chairman of the New York Commission, voiced the feeling of the delegates in declaring "we must employ the civil-service law as an aggressive instrument of efficiency in government."

The meeting was devoted chiefly to the consideration of a model civil-service law, reported by a committee which had had its preparation in hand during the year previous and to which it was recommitted. In its report the committee defined the scope of the work of a civil-service commission as extending not only to the appointment of fit men after a thorough and impartial test of merit, but that it is important that in their subsequent daily work the same standard should be maintained so that the public may derive the benefit of the merit system. The committee added:

> Where public employees deteriorate through their own fault, they should be removed. If they deteriorate because of the conditions of employment which make good work impossible or unnecessarily difficult, these conditions should be corrected. The prompt and certain removal of incompetent employees, the correction of defective organization and defective conditions of employment, the training of employees, the task of getting competent men into the public service and of keeping them there, the correlation of their pay with the results achieved, the preparation of the budget in its employment, as distinguished from its financial features, and the maintenance of standards of efficiency are employment problems which do not change with changing administrations which require constant expert treatment.

Robert Catherwood, president of the Cook County (Ill.) Commission, in speaking on the essential principles of a model civil-service law, dwelt upon the extent of the problem. He said:

It is estimated that about 1,300,000 are engaged in the service of the 48 states, 2,852 counties and 12,663 incorporated cities and other municipalities. Practically every vocation you can name is found somewhere in public service. But the importance of having an efficient and democratic civil service is seen when we note that over half the statutes turned out by the 48 legislatures require the civil servants to do something. The year 1912 alone, with 42 legislatures in session, produced nearly 4,000 such acts.

Now we have had the rudiments of merit civil-service systems in this country for something over a third of a century. Nine states and 216 counties and municipalities govern under laws which embody parts of that system. But 39 states and 15,300 counties and municipalities have no merit civil-service system whatever. We also are very far from being able to say that our existing civil-service laws meet the need of the situation. In fact, many of them only touch the edges of the real situation. Perhaps if we really could establish and maintain really efficient civil-service systems which would provide rational and comprehensive means for enforcing the laws impartially and administering them subject to the open and responsible direction of the elective officers, in matters of general political policy, we should solve, incidentally, a mass of other governmental problems. But experience teaches that if our civil-service laws vest in the political officers a secret dispensing power which practically places them and all their friends above the laws, and trust for correction only to the remedy of the next election; if we legislate as though all political officers were heaven-born administrators, efficient *per se*, we work irreparable mischief in public service, and injure not only the cause of law and order, but render the democracy itself futile and uncertain.

In its resolutions the Assembly urged closer coöperation among the various state and municipal commissions looking to the improvement of the quality, character and utility of examinations and reduction of costs, and particularly a closer coöperation among the commissions of the same state, believing that wherever it is possible and practicable, efficiency bureaus and civil-service commissions should be consolidated or very closely coördinated. It was also recommended that the merit system be extended to include teachers in public schools in order that weight may be given to experience and personal fitness.

Thomas F. Boyle of the Massachusetts Civil Service Commission was chosen president, and John T. Doyle of the Federal Commission was re-elected secretary.

National Civil Service Reform League.—The National Civil Service Reform League at its thirty-third annual meeting held in Boston in December, 1913, congratulated the country that the efforts made in Congress to have the 50,000 fourth-class postmasters exempted from the operation of the civil-service law had failed and approved the recommendation of the Postmaster-General to extend the merit system to postmasters of the second and third class. The League regretted, however, that the present Administration, like its predecessor, had been either unable or unwilling to apply a system of promotion for experience and merit to the higher diplomatic posts. It urged that the 14 commercial attachés to be accredited to foreign Governments be selected through examination. This recommendation, however, was not heeded, the offices being exempted by law (see *supra*).

The officers of the National Civil Service Reform League are: president, Richard Henry Dana, Cambridge, Mass.; acting secretary, George T. Keyes, 79 Wall St., New York; chairman, Robert D. Jenks, Philadelphia.

Miscellaneous. — The several state commissions on efficiency (especially those of Minnesota and Illinois) are giving a very considerable amount of attention to the relation of the merit system to efficiency. The National Municipal League's Committee on municipal programme (W. D. Foulke, chairman) is likewise considering the question from the same angle.

The Cleveland charter adopted in 1913 contains a provision providing for the creation of a registration system for the municipal labor survey. This provision was repealed on Aug. 11 on an initiative vote taken in connection with the party primaries.

VI. STATE AND COUNTY GOVERNMENT

JOHN M. MATHEWS

In the following series of tables the more important facts relative to the forty-eight states which at present constitute the American Union are brought together for convenient reference:

1. The first table gives the area and population of the states, together with the date upon which they severally ratified the Constitution of the United States, or upon which they were admitted to the Union. The population at 1900 and 1910 is given, together with the percentage of increase since 1900, and the rank of the several states in population in 1910.

The population of the continental United States at the thirteenth census, taken April 15, 1910, was 91,402,151, an increase of 15,977,691 over the population on June 1, 1900, and an increase of 21 per cent., as compared with an increase of 22.7 per cent. in 1900. The states in which the population increased more than 50 per cent. include Oklahoma, New Mexico, Arizona, Nevada, Washington, Oregon, California, North Dakota, Montana, Wyoming, and Idaho. All these states are situated in the western half of the United States.

Including Alaska, Hawaii, Porto Rico, and military persons abroad, the population was 93,402,151. If the population of the Philippine Islands (7,635,426 in 1903) is added, with estimates for Guam, Samoa and the Canal, the total population of the United States and possessions on April 15, 1910, was 101,100,000.

The new apportionment of state representatives in Congress (*A. Y. B.*, 1912, p. 159) is based upon the population as given upon the following page.

2. The second table gives for each state the assessed valuation of property as made in 1913 or 1914, and the rate of taxation for state purposes; the total state indebtedness and the amount of sinking funds held against the same; the total revenue from all sources, and the total expenditure for the year. The data furnished in this table were courteously supplied by the treasurers or comptrollers of the several states.

3. The third table revises and extends the table on pp. 184-9 of the YEAR BOOK for 1910, which gives the facts in regard to the state constitutions; dates of adoption; methods of ratification of present and former constitutions, and the existing methods of amendment authorized by law in each state.

4. The fourth table gives the state governors; their politics; the length of the governor's term in each state; the date of the beginning and ending of his term; and the governor's salary.

5. The fifth table presents the main features regarding the state legislatures, including the political complexion of the legislatures; number of members of each house; length of the term; frequency of session; the limit upon duration of sessions, if any; and the salaries of members of both branches of the legislature.

6. The sixth table indicates the main facts regarding the state judiciary; the name of the courts and number of judges; how chosen; length of term; and salary.

7. The seventh table indicates the number of counties in each state and the general facts as to the county officers, their titles, which, as a rule, indicate their functions, and whether elected or appointed.

An eighth table appeared in the YEAR BOOK for 1910, giving the census returns of receipts and payments of counties for 1902.

I. THE STATES OF THE UNION

Area, Population, Dates of Ratification and Organization, and Order of Admission to the Union

	Ratification of Constitution	Area	Population, 1900	Population, 1910	Percentage of Increase, 1900–1910	Rank in Population, 1910
New Hampshire	June 21, 1788	9,031	411,588	430,572	4.6	39
Massachusetts	February 6, 1788	8,039	2,805,346	3,366,410	20.0	6
Rhode Island	May 29, 1790	1,067	428,556	542,610	26.6	38
Connecticut	January 9, 1788	4,820	908,420	1,114,756	22.7	31
New York	July 26, 1788	47,654	7,268,894	9,113,614	25.4	1
New Jersey	December 18, 1788	7,514	1,883,669	2,537,167	34.7	11
Pennsylvania	December 12, 1787	44,832	6,302,115	7,665,111	21.6	2
Delaware	December 7, 1787	1,965	184,735	202,322	9.5	46
Maryland	April 28, 1788	9,941	1,188,044	1,294,450	9.0	27
Virginia	June 26, 1788	40,262	1,854,184	2,061,612	1..2	20
North Carolina	November 21, 1789	48,740	1,893,810	2,206,287	16.5	16
South Carolina	May 23, 1788	30,495	1,340,316	1,515,400	13.1	26
Georgia	January 2, 1788	58,725	2,216,331	2,609,121	17.7	10

	Date of Admission	Area	Population, 1900	Population, 1910	Percentage of Increase, 1900–1910	Rank in Population, 1910
Kentucky	February 4, 1791	40,181	2,147,174	2,289,905	6.6	14
Vermont	February 18, 1791	9,124	343,641	355,956	3.6	42
Tennessee	June 1, 1796	41,687	2,020,616	2,184,789	8.1	17
Maine	March 3, 1820	29,895	694,466	742,371	6.9	34
Texas	December 29, 1845	262,398	3,048,710	3,896,543	27.8	5
West Virginia	June 20, 1863	24,022	958,800	1,221,119	27.4	28
Ohio	April 30, 1802	40,740	4,157,545	4,767,121	14.7	4
Louisiana	April 8, 1812	45,409	1,381,625	1,656,388	19.9	24
Indiana	December 11, 1816	35,885	2,516,462	2,700,876	7.3	9
Mississippi	December 10, 1817	46,362	1,551,270	1,797,114	15.8	21
Illinois	December 3, 1818	56,002	4,821,550	5,638,591	16.9	3
Alabama	December 14, 1819	51,279	1,828,697	2,138,093	16.9	18
Missouri	March 2, 1821	68,727	3,106,665	3,293,335	6.0	7
Arkansas	June 15, 1836	52,525	1,311,564	1,574,449	66.2	25
Michigan	January 26, 1836	57,480	2,420,982	2,810,173	16.1	8
Florida	March 3, 1845	54,861	528,542	752,619	42.1	33
Iowa	December 28, 1846	55,586	2,231,853	2,224,771	.3	15
Wisconsin	May 29, 1848	55,256	2,069,042	2,333,860	12.7	13
California	September 9, 1850	156,092	1,485,053	2,377,549	60.1	12
Minnesota	May 11, 1858	80,858	1,751,394	2,075,708	18.5	19
Oregon	February 14, 1859	95,607	413,536	672,765	62.7	35
Kansas	January 29, 1861	81,774	1,470,495	1,690,949	15.0	22
Nevada	March 21, 1864	109,821	42,335	81,875	93.4	48
Nebraska	February 9, 1867	76,808	1,066,300	1,192,214	11.8	29
Colorado	March 3, 1875	103,658	539,700	799,024	48.0	32
North Dakota	February 22, 1889	70,183	319,146	577,056	80.8	37
South Dakota	February 22, 1889	76,868	401,570	583,888	45.4	36
Montana	February 22, 1889	145,776	243,329	376,053	54.5	40
Washington	February 22, 1889	66,836	518,103	1,141,990	120.4	30
Idaho	July 3, 1890	83,779	161,772	325,594	101.3	44
Wyoming	July 10, 1890	97,594	92,531	145,965	57.7	47
Utah	July 16, 1894	82,184	276,749	373,351	34.9	41
Oklahoma	November 16, 1907	69,414	790,391	1,657,155	109.7	23
New Mexico	January 6, 1912	122,580	195,310	327,301	67.6	43
Arizona	February 14, 1912	113,020	122,931	204,354	66.2	45

Area.—The total area of continental United States is 2,974,159 sq. miles. The total area, including Alaska and Hawaii, is 3,624,122 sq. miles. The area of Alaska is 590,884 sq. miles; of the Hawaiian Islands, 6,449 sq. miles; of the Philippine Islands, 115,026 sq. miles; of Porto Rico, 3,435 sq. miles; and of the Panama Canal Zone, 448 sq. miles.

II. STATE INDEBTEDNESS, TAXATION, REVENUES, AND EXPENDITURES

The figures in the following table, for the most part courteously supplied by the treasurers or auditors of the various states, are the latest available. They relate in general to the fiscal year ending in 1914; in the case of states whose fiscal year coincides with the calendar year, the figures are for the year ending Dec. 31, 1913.

State	Assessed Value of Property	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund	Total Receipts	Total Expenditures
Alabama	$615,380,500	$6.50	$9,057,000	None	$6,507,734	$6,445,670
Arizona	375,862,414	4.95	3,009,275	$62,105	2,770,572	3,051,356
Arkansas	450,000,000	6.87	1,250,500	47,120	7,517,973	7,965,956
California	3,202,450,546	None	12,750,000	None	35,895,013	28,739,817
Colorado	1,306,498,162	1.30	3,150,000	21,169	3,580,445	3,837,423
Connecticut	1,172,051,740	1.00	11,064,100	None	11,515,809	11,728,412
Delaware	.....	.....	826,785	.....	.....	.....
Florida	234,343,733	7.50	601,567	None	3,703,007	3,229,193
Georgia	867,209,737	5.00	6,634,202	100,000	6,907,139	7,281,030
Idaho	425,196,245	2.11	2,399,750	503,708	2,549,298	2,890,766
Illinois	2,455,946,149	4.80	None	None	25,668,048	18,528,499
Indiana	1,898,207,235	3.91	740,163	.....	.....	.....
Iowa	926,900,092	2.90	None	None	11,524,771	11,828,396
Kansas	2,804,810,092	1.20	370,000	23,000	7,023,860	5,479,424
Kentucky	.....	.....	.....	.....	.....	.....
Louisiana	587,353,313	5.00	10,991,500	.....	.....	.....
Maine	478,192,044	5.00	569,000	None	5,081,853	4,889,678
Maryland	1,007,881,475	3.10	20,685,881	7,088,965	20,895,496	19,439,809
Massachusetts	5,796,737,558	.....	117,621,412	35,938,696	17,669,223	17,019,540
Michigan	2,345,695,709	3.75	None	None	17,133,162	16,211,286
Minnesota	1,369,970,302	2.30	None	None	11,859,206	10,730,234
Mississippi	372,218,556	6.00	2,828,899	310,853	5,598,158	5,287,305
Missouri	1,857,676,174	1.90	3,500,000	None	10,128,323	9,089,593
Montana	412,000,000	2.50	510,000	28,000	4,446,954	4,808,846
Nebraska	471,940,195	7.80	None	None	10,861,890	10,889,870
Nevada	112,210,463	6.60	680,000	449,405	1,882,770	938,749
New Hampshire	522,459,256	16.50	1,071,000	.....	3,521,222	3,283,195
New Jersey	2,406,260,693	None	None	None	.....	.....
New Mexico	91,734,601	13.50	2,625,000	.....	.....	.....
New York	11,385,137,127	0.5805	159,260,660	30,144,543	.....	.....
North Carolina	802,031,456	4.76	8,149,150	None	5,677,108	5,344,067
North Dakota	307,042,816	4.50	662,300	150,295	4,891,667	5,043,565
Ohio	6,897,968,969	0.961	None	103,978	15,578,471	14,707,624
Oklahoma	1,777,079,420	3.50	4,367,000	.....	.....	.....
Oregon	932,413,080	3.34	None	None	5,406,941	5,384,718
Pennsylvania	6,544,358,561	None	657,110	797,831	35,348,615	37,581,706
Rhode Island	662,469,733	.90	5,830,000	788,429	3,459,251	3,511,513
South Carolina	297,431,780	5.75	6,329,636	722,383	4,349,167	3,610,533
South Dakota	1,195,402,548	1.00	None	None	.....	.....
Tennessee	672,754,691	3.50	11,417,000	.....	9,166,871	9,779,580
Texas	2,748,602,909	4.50	3,977,500	None	19,119,098	16,578,838
Utah	214,859,715	7.50	1,210,000	370,000	3,483,680	4,362,998
Vermont	222,989,343	None	None	None	3,294,682	3,354,962
Virginia	814,232,340	3.50	24,339,289	585,988	7,797,952	7,645,357
Washington	1,031,901,697	8.07	306,000	.....	10,500,000	8,500,000
West Virginia	1,219,343,494	.60	None	None	6,964,377	6,691,537
Wisconsin	486,424,005	18.08	11,524,750	947,250	14,280,409	14,018,648
Wyoming	203,740,037	2.85	111,000	.....	1,371,101	1,201,472

III. STATE CONSTITUTIONS

For the revision of the table of state constitutions on pp. 184–9 of the AMERICAN YEAR BOOK for 1910, it is necessary only to note that the following states have adopted popular initiative as a second means of proposing amendments: California (1911), Colorado (1911), Florida (1912), Michigan (1913), Mississippi (1914), Nebraska (1912), North Dakota (1914), Ohio (1912) and Texas (1911). The data for Arizona and New Mexico, admitted as states in 1912, are as follows:

STATE	Date	METHOD OF ADOPTION		PRESENT METHOD OF AMENDMENT			PRESENT METHOD OF GENERAL REVISION	
		Framed by	Popular Ratification	Proposed by	Limitations	Popular Ratification	Convention Called by	Popular Ratification
New Mexico	1911	Convention	Yes	⅔ members of each house	Not more than three at one time	Majority equal to 40 per cent. of total vote in one-half counties	¾ of each house and popular vote	Majority of votes
Arizona	1911	Convention	Yes	(1) Majority of each house (2) Popular initiative		Majority vote on question	Popular vote	Majority vote

IV. STATE AND TERRITORIAL GOVERNORS

STATE OR TERRITORY	Governor	Capital	Length of Term	Term Expires	Salary
Maine	O. C. Curtis	Augusta	2	January, 1917	$3,000
New Hampshire	*R. H. Spaulding*	Concord	2	January, 1917	3,000
Vermont	*C. W. Gates*	Montpelier	2	October, 1916	2,500
Massachusetts	D. I. Walsh	Boston	1	January, 1916	8,000
Rhode Island	*R. L. Beeckman*	Providence	2	January, 1917	3,000
Connecticut	*M. H. Holcomb*	Hartford	2	January, 1917	4,000
New York	*C. S. Whitman*	Albany	2	January, 1917	10,000
New Jersey	J. F. Fielder	Trenton	3	January, 1917	10,000
Pennsylvania	*M. G. Brumbaugh*	Harrisburg	4	January, 1919	10,000
Delaware	*C. R. Miller*	Dover	4	January, 1917	4,000
Maryland	*P. L. Goldsborough*	Annapolis	4	January, 1916	4,500
Virginia	H. C. Stuart	Richmond	4	February, 1918	5,000
West Virginia	*H. D. Hatfield*	Charleston	4	March, 1917	5,000
North Carolina	Locke Craig	Raleigh	4	January, 1917	5,000
South Carolina	R. I. Manning	Columbia	2	January, 1917	3,000

Democrats in Roman, Republicans in *Italics*.

IV. STATE AND TERRITORIAL GOVERNORS—*Continued*

State or Territory	Governor	Capital	Length of Term	Term Expires	Salary
Georgia	N. E. Harris	Atlanta	2	June, 1917	$5,000
Florida	Park Trammell	Tallahassee	4	January, 1917	6,000
Kentucky	J. B. McCreary	Frankfort	4	December, 1915	6,500
Tennessee	T. C. Rye	Nashville	2	January, 1917	4,000
Alabama	Charles Henderson	Montgomery	4	January, 1919	7,500
Mississippi	Earl Brewer	Jackson	4	January, 1916	4,500
Arkansas	G. W. Hays	Little Rock	2	January, 1917	4,000
Louisiana	Luther E. Hall	Baton Rouge	4	May, 1916	5,000
Texas	J. E. Ferguson	Austin	2	January, 1917	4,000
Oklahoma	R. L. Williams	Oklahoma City	4	January, 1919	4,500
Ohio	*F. B. Willis*	Columbus	2	January, 1917	10,000
Indiana	S. M. Ralston	Indianapolis	4	January, 1917	8,000
Illinois	Edward F. Dunne	Springfield	4	January, 1917	12,000
Michigan	W. N. Ferris	Lansing	2	January, 1917	5,000
Wisconsin	*E. L. Philipp*	Madison	2	January, 1917	5,000
Minnesota	W. S. Hammond	St. Paul	2	January, 1917	7,000
Iowa	*Geo. W. Clarke*	Des Moines	2	January, 1917	5,000
Missouri	E. W. Major	Jefferson City	4	January, 1917	5,000
Kansas	*Arthur Capper*	Topeka	2	January, 1917	5,000
Nebraska	J. H. Morehead	Lincoln	2	January, 1917	2,500
South Dakota	*F. M. Byrne*	Pierre	2	January, 1917	3,000
North Dakota	*L. B. Hanna*	Bismarck	2	January, 1917	5,000
Montana	S. V. Stewart	Helena	4	January, 1917	7,500
Idaho	Moses Alexander	Boise	2	January, 1915	5,000
Wyoming	J. B. Kendrick	Cheyenne	4	January, 1919	4,000
Colorado	*G. A. Carlson*	Denver	2	January, 1915	5,000
New Mexico	W. C. McDonald	Santa Fe	4	January, 1916	5,000
Arizona	G. W. P. Hunt	Phoenix	2	January, 1917	4,000
Utah	*Wm. Spry*	Salt Lake City	4	January, 1917	4,000
Nevada	Emmet Boyle	Carson City	4	January, 1919	4,000
California	H. W. Johnson	Sacramento	4	January, 1919	10,000
Oregon	*James Withycombe*	Salem	4	January, 1919	5,000
Washington	Ernest Lister	Olympia	4	January, 1917	6,000
Alaska	J. F. A. Strong	Juneau	4	April, 1917	7,000
Hawaii	L. E. Pinkham	Honolulu	4	November, 1917	7,000
Porto Rico	Arthur Yager	San Juan	4	November, 1917	8,000

Democrats in Roman, Republicans in *Italics*, Progressives in SMALL CAPS.

	Number of Members		Length of Term (years)		Regular Sessions	Regular Session Begins	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Maine	31	151	2	2	Biennial	January, 1915	None	$300 per year.
New Hampshire	24	402	2	2	Biennial	January, 1915	None	200 per term
Vermont	30	246	2	2	Biennial	October, 1916	None	4 per day.
Massachusetts	40	240	1	1	Annual	January, 1915	None	1,000 per year.
Rhode Island	39	100	2	2	Annual	January, 1915	60	5 per day.
Connecticut	35	258	2	2	Biennial	January, 1915	5 mo.	300 per year.
New York	51	150	2	1	Annual	January, 1915	None	$1,500 per year.
New Jersey	21	60	3	1	Annual	January, 1915	None	500 per year.
Pennsylvania	50	207	4	2	Biennial	January, 1915	None	1,500 per year.
Delaware[1]	17	35	4	2	Biennial	January, 1915	60	5 per day.
Maryland	27	102	4	2	Biennial	January, 1916	90	$5 per day.
Virginia	40	100	4	2	Biennial	January, 1916	60[3]	500 per session.
West Virginia[2]	30	87	4	2	Biennial	January, 1915	45	5 per day.
North Carolina	51	120	2	2	Biennial	January, 1915	60	5 per day.
South Carolina	42	124	4	2	Annual	January, 1915	None	200 per session.
Georgia	44	184	2	2	Annual	June, 1915	50	4 per day.
Florida	32	71	4	2	Biennial	April, 1915	60	6 per day.
Kentucky	38	100	4	2	Biennial	January, 1916	60	$10 per day.
Tennessee	33	99	2	2	Biennial	January, 1915	75	4 per day.
Alabama	35	106	4	4	Quadrennial	January, 1915	50	4 per day.
Mississippi	45	136	4	4	Biennial	January, 1916	45	500 per session.
Arkansas	36	100	2	2	Biennial	January, 1915	90	6 per day.
Louisiana	42	115	4	4	Biennial	May, 1916	60	5 per day.
Texas	31	143	4	2	Biennial	January, 1915	None	5 per day, for 60 days, $2 per day thereafter.
Oklahoma	44	109	4	2	Biennial	January, 1915	.....	6 per day, for 60 days, $2 per day thereafter.

Democratic legislatures in Roman; Republican in *Italics*. [1] Republican Senate, Democratic House. [2] Democratic Senate, Republican House. [3] Can be extended 30 days by ⅗ vote.

State or Territory	Number of Members		Length of Term (years)		Regular Sessions	Sessions Begin	Limit of Session (days)	Salary
	Senate	House	Senate	House				
Ohio	33	123	2	2	Biennial	January, 1915	None	$1,000 per year.
Indiana	50	100	4	2	Biennial	January, 1915	60	6 per day.
Illinois	51	153	4	2	Biennial	January, 1915	None	2,000 per session.
Michigan	32	100	2	2	Biennial	January, 1915	None	800 regular session. 5 per day, extra session.
Wisconsin	33	100	4	2	Biennial	January, 1915	None	500 per session.
Minnesota	63	121	4	2	Biennial	January, 1915	90	1,000 per session.
Iowa	50	108	4	2	Biennial	January, 1915	None	1,000 regular session. 10 per day, extra session.
Missouri	34	142	4	2	Biennial	January, 1915	70	5 per day.
Kansas	40	125	4	2	Biennial	January, 1915	50	3 per day.
Nebraska[1]	33	100	2	2	Biennial	January, 1915	None	600 per session.
South Dakota	45	104	2	2	Biennial	January, 1915	60	5 per day.
North Dakota	50	111	4	2	Biennial	January, 1915	60	5 per day.
Montana	32	86	4	2	Biennial	January, 1915	60	$10 per day
Idaho	23	60	2	2	Biennial	January, 1915	60	5 per day.
Wyoming	27	57	4	2	Biennial	January, 1915	40	8 per day.
Colorado	35	65	4	2	Biennial	January, 1915	None	1,000 per session.
New Mexico	24	49	4	2	Biennial	January, 1914	60	5 per day.
Arizona	19	35	2	2	Biennial	January, 1915	60	7 per day.
Utah	18	45	4	2	Biennial	January, 1915	60	4 per day.
Nevada	22	53	4	2	Biennial	January, 1915	60	10 per day.
California†	40	80	4	2	Biennial	January, 1915	§	1,000 regular session. 10 per day, extra session.
Oregon	30	60	4	2	Biennial	January, 1915	40	3 per day.
Washington	42	97	4	2	Biennial	January, 1915	60	5 per day.
Alaska	8	16	4	2	Biennial	March, 1915	60	$15 per day.
Hawaii	15	30	4	2	Biennial	February, 1915	60	$600 per session.
Porto Rico	11	35	4	2	Annual	January, 1915	60	5 per day, members of House. 3,000 per year for 6 members of Senate, 5 serving without pay.

Democratic legislatures in Roman; Republican in *Italics*. Those marked † have Progressive majorities. [1] Republican Senate, Democratic House. [2] Democratic Senate, Republican House. § Split session; first part 30 days; recess 30 days; no limit to second part.

Legislatures in session, 1914.—Regular sessions were held in 1914 in Georgia, Kentucky, Louisiana, Maryland, Massachusetts, Mississippi, New Jersey, New Mexico, New York,* Rhode Island, South Carolina,* Vermont and Virginia. Those marked * held special sessions also. In addition, special sessions were held in Colorado, Ohio, Texas and West Virginia.

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Maine	Supreme Court	8	7	Gov. and Council	$5,000	Nisi Prius	.....	.....	.....	.....
						Superior Courts in 2 counties	.....	2	7	Gov. and Council
New Hampshire	Supreme Court	5	(a)	Gov. and Council	4,200	Superior Court	.....	4	(a)	Gov. and Council
					4,000					
Vermont	Supreme Court	5	2	Legislature	4,000	County Courts	14	.....	.....	Legislature
Massachusetts	Supreme Court	7	(b)	Gov. and Council	10,500	Superior Court	.....	28	(b)	Gov. and Council
					10,000					
Rhode Island	Supreme Court	5	(c)	Legislature	6,000	Superior Court	.....	7	(c)	Legislature
						District Courts	12	13	3	Legislature
Connecticut	Court of Errors	6	8	Gov. and Legislature	8,000	Superior Court	.....	12	8	Gov. and Legis.
						Court of Common Pleas in 5 counties				
New York	Court of Appeals	7	14	Elected	$14,200	Appellate Division	4	22	.....	.....
					13,700	Supreme Court	9	102	14	Elected
						County Courts	.....	.....	6	Elected
New Jersey	Court of Errors and Appeals	16	7	Gov. and Senate	13,000	Chancery	.....	9	6	Gov. and Senate
					12,000					
						Supreme Court	9	9	7	Gov. and Senate
						Circuit Court	6	6	7	Gov. and Senate
Pennsylvania	Supreme Court	7	21	Elected	13,500	Superior Court	5	7	10	Elected
					13,000	Court of Common Pleas	.....	.....	.....	.....
Delaware	Court of Errors and Appeals	6	12	Gov. and Senate	.....	Chancellor	.....	.....	.....	Gov. and Senate
Maryland	Court of Appeals	8	15	Elected by Districts	$6,800	Circuit Courts	8	22	15	Elected
						Special Courts, in Balt.	.....	.....	.....	.....
Virginia	Supreme Court of Appeals	5	12	Legislature	5,200	Circuit Courts	31	31	8	Legislature
					5,000					
West Virginia	Supreme Court of Appeals	4	12	Elected	.....	Circuit Courts	18	.....	8	Elected
North Carolina	Supreme Court	5	8	Elected	4,650	Superior Court	16	16	8	Elected
South Carolina	Supreme Court	4	8	Legislature	3,000	Circuit Courts	.....	.....	4	Elected
Georgia	Supreme Court	6	6	Elected	4,000	Court of Appeals	3	3	6	Elected
						Superior Court	38	38	4	Elected
Florida	Supreme Court	5	6	Elected	3,600	Circuit Courts	11	11	6	Gov. and Senate
						County Courts	.....	.....	.....	.....

(a) Until 70 years of age. (b) During good behavior. (c) Until removed by the legislature.

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Kentucky	Court of Appeals	7	8	Elected by districts	$5,000	Circuit Courts	38	38	6	Elected
Tennessee	Supreme Court	5	8	Elected	5,000	Court of Civil Appeals	.....	5	8	Elected
						Chancery Court	.....	12	.....	Elected
						Circuit Courts	.....	20	.....	Elected
						Criminal Court	.....	6	.....	Elected
Alabama	Supreme Court	7	6	Elected	5,000	Chancery Courts	5	5	6	Elected
						Circuit Courts	16	16	6	Elected
Mississippi	Supreme Court	3	9	Gov. and Senate	4,500	Chancery Courts	.....	.....	4	Gov. and Senate
						Circuit Courts	13	.....	4	Gov. and Senate
Arkansas	Supreme Court	5	8	Elected	4,000	Circuit Courts	17	.....	4	Elected
Louisiana	Supreme Court	5	.....	Elected	6,000	Circuit Courts of Appeals	6	.....	.....	.....
						District Courts	24	.....	4	Elected
Texas	Supreme Court	3	6	Elected	5,000	Court of Criminal Appeal	.....	3	6	Elected
						Courts of Civil Appeals	8	24	6	Elected
						District Courts	.....	.....	4	Elected
Oklahoma	Supreme Court	5	6	Elected	.....	Criminal Court of Appeals	.....	.....	.....	.....
						District Courts	21	.....	4	Elected
Ohio	Supreme Court	7	6	Elected	$6,500	Courts of Appeal	8	24	6	Elected
						Courts of Common Pleas	.....	.....	6	Elected
Indiana	Supreme Court	5	6	Elected	6,000	Appellate Courts	2	6	4	Elected
						Circuit Courts	92	92	6	Elected
						Superior Courts in 10 count's	.....	14	4	Elected
Illinois	Supreme Court	7	9	Elected	10,000	Courts of Appeal	4	15	.....	.....
						Circuit Courts	18	65	6	Elected
						County Courts	102	102	4	Elected
Michigan	Supreme Court	8	8	Elected	7,000	Circuit Courts	39	49	6	Elected
Wisconsin	Supreme Court	7	10	Elected	7,500	Circuit Courts	20	25	6	Elected
Minnesota	Supreme Court	5	6	Elected	7,000	District Courts	19	42	6	Elected
Iowa	Supreme Court	7	6	Elected	6,000	District Courts	21	59	4	Elected
Missouri	Supreme Court	7	10	Elected	4,500	Courts of Appeal	3	9	12	Elected
						Circuit Courts	37	56	6	Elected
Kansas	Supreme Court	7	6	Elected	4,000	District Courts	38	38	4	Elected
Nebraska	Supreme Court	7	6	Elected	4,500	District Courts	16	29	4	Elected
South Dakota	Supreme Court	5	6	Elected	3,000	Circuit Courts	12	12	4	Elected
North Dakota	Supreme Court	5	10	Elected	.....	District Courts	8	.....	4	Elected

VI. STATE JUDICIARY—*Continued*

State	Highest State Court					Other Courts				
	Name of Court	No. of Judges	Length of Term (years)	How Chosen	Salary	Name	No. of Dists.	No. of Judges	Term (years)	How Chosen
Montana	Supreme Court	3	6	Elected	$6,000	District Courts	14	21	4	Elected
Idaho	Supreme Court	3	6	Elected	5,000	District Courts	7	.....	4	Elected
Wyoming	Supreme Court	3	8	Elected	5,000	District Courts	6	6	6	Elected
Colorado	Supreme Court	7	6	Elected	5,000	District Courts	13	.....	6	Elected
						County Courts	.....	.....	.....	.....
New Mexico	Supreme Court	3	8	Elected	6,000	District Courts	8	8	6	Elected
Arizona	Supreme Court	3	6	Elected	5,000	Superior Courts	14	14	4	Elected
Utah	Supreme Court	3	6	Elected	5,000	District Courts	7	12	4	Elected
Nevada	Supreme Court	3	6	Elected	6,000	District Courts	10	10	4	Elected
California	Supreme Court	7	12	Elected	8,000	Courts of Appeal	3	9	12	Elected
						Superior Courts	58	98	6	Elected
Oregon	Supreme Court	5	6	Elected	4,500	Circuit Courts	9	16	6	Elected
Washington	Supreme Court	9	6	Elected	5,000	Superior Courts	25	44	4	Elected

VII. COUNTY OFFICERS

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
Maine	16	3		El.	El.	El.	App.	El.	El.	.....	El.			El.				
New Hampshire	10	3		App.	El.	El.	App.	App.	El.	.....	El.	App.	El.	El.		El.	App.	App.
Vermont	14		El.	dist.	El.	El.		App.		.....				El.				
Massachusetts	14	3		App.	Dist.	El.	.....	El.	El.	.....	El.			El.				
Rhode Island	5	None				App.		App.										
Connecticut	8	App. 3	s.	dist.	App.	El.	App.	App.				App.		App.				App.
New York	62	Var.	El.	El.	El.	El.	El.	.....		El.	s.	s.		El.		dist.	El.	
New Jersey	21	Var.	App.	App.	App.	El.	El.	.....		El.	s.	App.		App.		App.	s.	
Pennsylvania	67	3	El.	El.	El.	El.	El.	El.	El.	App.	El.	El.	El.	El.	El.	El.	s.	App.
Delaware	3	7–10		El.		El.	El.	El.	El.	.....	El.			El.		App.		App.
Maryland	24	3–7		El.	El.	El.	App.	El.		App.	El.			El.	El.	App.		App.
Virginia	100	3–8		.....	El.	El.	App.	El.		El.	.....			El.	App.	App.	App.	
	18a																	
West Virginia	55	3			El.	El.	App.	El.		El.			El.		El.	El.	App.	App.

State	No. of Counties	County Bd., No. of Members	County Judge	Probate Judge	Prosecuting Attorney	Sheriff	Coroner	Clerk of Court	Register of Probate	County Clerk	Register of Deeds	County Auditor	County Assessor	County Treasurer	County Surveyor	Supt. of Schools	Supt. of Poor	Health Officer
North Carolina	100	3–5			Dist.	El.	El.	El.		.....	El.			El.	El.	App.		App.
South Carolina	43	Var.		El.	Dist.	El.	El.	El.		.....	s.	App.		El.		El.		
Georgia	148	3–5	sEl.	El.	Dist.	El.	El.	El.		El.	El.		App.	El.	El.	El.	s.	.....
Florida	50	5	El.	.....	Dist.	El.		El.					El.	El.	El.	El.		App.
Kentucky	120	8	El.	.....	El.	El.	El.	El.		El.			El.		El.	El.		App.
Tennessee	96	Var.	El.	.....	Dist.	El.	App.	El.		.....	El.	.....	s.	El.	App.	App.	App.	App.
Alabama	67	5	.....	El.	Dist.	El.	El.	El			.....		El	El.	App.	El.		App.
Mississippi	79	5			El.	El.	El.	El.				El.	El.	El.	El.	El.		App.
Louisiana	60*b*	Var.			El.	El.				El.	.....		El.	App.	El.	App.		App.
Texas	248	5	El.	.....	El.	El.		El.		El.	.....	App.	El.	El.	El.	El.	App.	App.
Oklahoma	77	3		El.	El.	El.	El.			El.	El.		El.	El.	El.	El.	.....	
Arkansas	75	Var.	El.	.....	Dist.	El.	El.	El.		.....	.....		El.	El.	El.	App.		
Missouri	114	3		El.	El.	El.	El.	El.		El.	s	s.	El.	El.	El.	El.		App.
Ohio	88	3	El.	El.	El.	El.	El.	El.		El.		El.	App.	El.	El.			
Indiana	92	3(7)*c*	s.	s.	El.	El.	El.	El.			El.	El.	El.	El.	El.	App.	App.	App.
Illinois	102	Var.	El.	s.	El.	El.	El.	El.		El.	El.	.....	s.	El.	El.	El.	App.	
Michigan	83	Var.		El.	El.	El.	El.	.....		El.	El.	s.		El.	El.	El.	App.	
Wisconsin	71	Var.	El.	El.	El.	El.	El.	El.		El.	El.	.....	El.	El.	El.	El.	App.	
Minnesota	86	3–7		El.	El.	El.	El.	El.		.....	El.	El.		El.	El.	El.		.....
Iowa	99	3–7			El.	El.	El.	El.		.....		El.		El.	El.	App.	App.	
Kansas	105	3	El.	El.	El.	El.	El.	El.		El.	El.	s.		El.	El.	El.		
Nebraska	92	Var.	El.	.....	El.	El.	El.	El.		El.	s.			El.	El.	El.		
South Dakota	61	3–5	El.	.....	El.	El.	El.	El.		.....	El.	El.	s.	El.	El.	El.		App.
North Dakota	49	3–5	El.	El.	El.	El.	El.	El.		.....	El.	El.	s.	El.	El.	El.		App.
Montana	34	3			El.	El.	El.	El.		El.	.....	El.	El.	El.	El.	El.		App.
Idaho	23	3		El.	El.	El.	El.	El.		.....	.....	.....	El.	El.	El.	El.		
Wyoming	21	3		.....	El.	El.	El.	s.		El.	.....		El.	El.	El.	El.		App.
Colorado	60	3–5	El.	.....	Dist.	El.	El.	.....		El.	.....		El.	El.	El.	El.	.....	.....
New Mexico	26	3		El.	Dist.	El.	.....	El.	El.		.....		El.	El.	El.	El.		.....
Arizona	14	3		El.	El.	El.	El.	El.		s.	El.		El.	El.	El.	El.		App.
Utah	27	3			El.	El.		.....		El.	El.	s.	El.	El.	El.	El.		
Nevada	16	3		.....	El.	El.	.....	.....		El.	El.	El.	El.	El.	El.	El.		
California*	58	3–7	El.	.....	El.	El.	El.	.....		El.	s.	El.	El.	El.	El.	El.		App.
Oregon	34	2		.....	Dist.	El.	El.	.....		El.	s.	El.	El.	El.	El.	El.		
Washington	38	3		.....	El.	El.	El.	.....		El.	.....	El.	El.	El.	El.	El.		App.

a. Cities. *b*. Parishes. *c*. 3 county commissioners; 7 members in the county councils. El., an elective county office. s., a county office in some counties. App., an appointive county office. ....., duties performed by some other officer. dist., elected or appointed for district smaller than a county. Var., number varies in different counties. Dist., elected or appointed for district larger than a county. * In Los Angeles county, the most populous county in California, the "short ballot" has been adopted. The only county officers hereafter to be elected by popular vote are the board of supervisors, auditor, district attorney, and assessor. All others are to be appointed by the board of supervisors.

STATE ADMINISTRATION

J. M. Mathews

The Governor.—The position and functions of the chief executive of the states have not recently been subject to any fundamental change, but some recent developments have tended to define them somewhat more clearly. One conspicuous difficulty in the governor's position has been the limited extent of his power of removal of subordinate state officers. Governor Ammons of Colorado declared at the Conference of Governors, held at Madison, Wis., in November, that his lack of power to remove subordinate officials and their consequent freedom to defy his authority was one of the principal causes of the great damage done to life and property during the Colorado miners' strike. The people of the state look to the governor to manage the state business generally and are naturally inclined to hold him responsible if things go wrong, but at the same time he is denied the power of fully controlling and directing the state administration.

An important case recently decided in regard to the governor's power of removal arose out of the attempt of Governor McGovern of Wisconsin to remove from office the state Commissioner of Insurance and appoint his successor (Ekern *v.* McGovern, 154 Wis. 157). The Supreme Court of Wisconsin held in this case that, although the governor had power to remove the commissioner from office, and although the acts of the governor within the exercise of his lawful authority are not subject to judicial review, nevertheless his power to remove a state officer is subject to the constitutional guaranty of due process of law, which requires a hearing at which the officer whom it is proposed to remove may have an opportunity to defend himself against any charges which may be brought against him. It should be mentioned, however, that in some other states, such as Illinois, the courts have held that, where the state constitution gives the governor the power of removing all officers whom he may appoint, due process of law does not require him to give such a hearing, although he may, as a matter of custom, accord it. In the Wisconsin case it was further held that the governor's power to remove from office the Commissioner of Insurance does not include as an incident thereto the power forcibly to install his successor. Where the person removed from office by the governor still refuses actually to vacate it, the courts have held generally that the proper remedy is not the application of force by the governor, but the new appointee must bring court proceedings to oust the alleged illegal incumbent, and, if the case is decided adversely to such incumbent and he still refuses to vacate the office, the governor may exercise force to compel him to do so.

That the power of the governor may at times expand in a manner analogous to that of the President in time of war was illustrated by the situation which recently arose in West Virginia as the result of the miners' strike in that state. Martial law was declared, and the governor committed acts, such as causing the summary arrest and imprisonment of persons whom he had a reason to believe were encouraging disorder and the suppression of newspapers circulated in the territory under martial law, all of which acts operated very seriously to interfere with the exercise of ordinary private rights, but were necessary in order to abate the disturbance and restore order. His acts were subsequently upheld by the Supreme Court of the state in a case (Hatfield *v.* Graham, 81 S. E. 533) in which it was declared that the proclamations, warrants and orders issued by the governor in the discharge of his official duties are not reviewable by the court.

The Governor and the Short Ballot.—The power of the governor to direct and control the state administration is dependent in large measure upon the advance of the short-ballot movement with respect to the heads of state departments and other state officers. The object of this movement is to reduce the number of elective officers, not only for the purpose of

enabling the voter to exercise a real choice in the selection of public officers, but also to concentrate responsibility in the hands of the head of the state administration, while at the same time giving him powers of appointment commensurate with his responsibility. Though the merits of the short-ballot principle are universally recognized by those competent to judge, its progress is nevertheless slow. In November, 1913, the people of Ohio rejected, by a vote of nearly two to one, the proposition to make the heads of the state departments appointive by the governor. Some difference of opinion exists, even among the advocates of the short-ballot principle, as to whether the state comptroller should be an appointive officer; and many feel that he, as the "watch-dog of the treasury," should remain elective by the people. If the principle of concentrated responsibility involved in the short ballot is to be adhered to, it is generally agreed that the governor's appointments should not be subject to confirmation by the senate.

The Governor and Legislation.—The impeachment of Governor Sulzer of New York was not only a blow to the personal prestige of a particular governor, but it also brought about incidentally a court decision which has the effect of restricting somewhat the power of the governor over the acts of the legislature during special sessions. In the case in question (People *ex rel.* Robinson *v.* Hayes, 143 N. Y. S. 325) it was held that the impeachment of the governor by the legislature while in extraordinary session is valid, even though the state constitution expressly provides that no subject shall be acted on at such a session except such as the governor recommends. Naturally, it is hardly to be expected that the governor would recommend his own impeachment. The ground upon which the court based its decision in this case was that the exercise of the power of impeachment is a judicial and not a legislative act.

With regard to the general relation of the governor to the legislature, although the continued dominance of the principle of separation of powers still keeps him comparatively isolated, nevertheless signs are not lacking that the people are less and less attached to this outworn principle and more and more anxious to secure efficient government and responsible leadership in the legislature, by whatever means may be necessary to that end. Some publicists even advocate that the governor, or at least the heads of state departments, be given seats in the legislative body, with power to introduce appropriation bills. At present much state money is wasted annually through unwise or excessive appropriations. This is due in large measure to the haphazard method of enacting appropriation bills and to the lack of any adequate system of budget making. As long as the drawing up of appropriation bills is almost entirely in the hands of legislative committees, the pressure of local interests inevitably produces waste and extravagance in the expenditure of public funds. The only apparent escape from this evil is by placing the initiation of the budget in the hands of the governor, who represents the state as a whole and general rather than special or local interests. In line with this idea New York, North Dakota, Ohio, Illinois, Wisconsin, California, Oregon, Massachusetts and other states have recently introduced systems which give to the governor or to some executive agency under him supervisory power over the estimates for each fiscal period. Economy in the expenditure of state money, however, is to be secured not only by supervision over the estimates, but also by improved methods and concentrated authority in the actual spending of public funds. The money appropriated for the use of various state institutions has heretofore frequently been more than necessary for the reason that each such institution was allowed a free hand in the purchasing of supplies. Not only did this allow room for occasional favoritism in awarding contracts, without sufficient scrutiny on the part of any central state official, but it also divided the power of spending the state money into so many hands that higher prices had to be paid for necessary supplies. The creation in many states of boards of control of all charitable and cor-

rectional institutions has had the effect of concentrating the fiscal management of such institutions in the hands of a central body, with the consequent increased economy in the purchase of supplies. New Hampshire and Vermont have recently gone a step further by providing for the appointment by the governor of a state purchasing agent, whose business is to purchase supplies not only for the state institutions, but for all the departments of the state government.

Boards and Commissions. — The number of state boards and commissions is continually on the increase, and scarcely a legislature meets without creating several new bodies of this kind. The members of these boards are generally appointed by the governor, subject to confirmation by the senate, but, though this increases the power of the governor somewhat, the limitations upon his power of removal, previously pointed out, prevent him from exercising any real control over these bodies. The range of subjects brought under the supervisory control of state boards is extremely wide, practically every field of state activity being covered. The larger number of them have to do with economic and developmental rather than protective functions. Side by side, however, with the movement toward the creation of new boards has developed a promising tendency toward the abolition of some boards and the consolidation of others. The abolition of boards has not had the effect, however, of narrowing the field of state activity, but rather of creating a more centralized control over such activities, for the work of the abolished boards has usually been transferred to existing agencies. A somewhat similar development has been the consolidation of existing boards into a single central body, which takes over the functions previously exercised by the separate boards. This tendency has been especially marked recently in connection with educational and with charitable and correctional administration. In Kansas the recently created state Board of Education took over the work of four educational boards which were abolished. The Board of Corrections and the Department of Labor and Industry in the same state each superseded four administrative authorities, while the Ohio Industrial Commission and the Oregon Board of Control displaced seven and nine authorities respectively.

The powers granted to and exercised by state boards and commissions are exceedingly varied. In theory these bodies are a part of the executive department of the state government, and, in accordance with the principle of separation of powers, are consequently supposed to exercise only executive or administrative powers. In fact, however, they frequently exercise also legislative or judicial powers. The courts, although generally upholding the sacredness of the principle of separation of powers, have nevertheless not usually applied the principle very strictly in passing upon the validity of the powers of state administrative agencies. It has been held in Illinois, for example, that the revocation by the state Board of Examiners of Architects of an architect's license is not an exercise of judicial power. Under a recent case in New York (People *v.* Anhut, 148 N. Y. S. 7) the governor was held to have the power to appoint a committee to investigate state departments with authority to issue subpœnas and compel the attendance of witnesses, and the Supreme Court of the United States recently held that judicial powers were not conferred on the Kentucky Railroad Commission contrary to the constitution of Kentucky by an act of that state authorizing the Commission to fix reasonable rates after a hearing. On the other hand, however, an act of North Dakota (Laws of 1913, ch. 194) establishing a state bonding department to bond certain county, city, village, township, and school district officials was held invalid as an unwarranted delegation of judicial power to administrative officials (State *v.* Taylor, 145 N. W. 425).

Efficiency and Economy Commissions.—The development of the state administrative organization has for a long time past been largely unconscious and consequently haphazard. Endless incongruities and absurdities were the natural result. Where im-

provements in organization occurred they were usually accidental. Recently, however, a feeling has developed that if any systematic improvement is to be made it must be based upon careful investigation of existing conditions, and upon patient analysis of the causes of present evils. As a result of such investigation and analysis, recommendations may be made for such a reorganization of the various state departments, bureaus, boards, and commissions as may be conducive to a more efficient and economical management of the state's business.

For the purpose of carrying out the objects indicated bodies have recently been created in Massachusetts, New York, New Jersey, Pennsylvania, Illinois, Minnesota, Iowa, South Dakota and Mississippi. In addition, a joint committee of the Nebraska legislature has recently recommended that an economy and efficiency survey be undertaken in that state. Such bodies are usually, but not invariably, known as efficiency and economy commissions. Some of them are intended to be continuous and permanent; others were created for mere temporary purposes. Some are undertaking merely to bring about improvements in existing methods; others are looking toward an almost complete reorganization of existing administrative agencies.

Some of the results of the labors of these commissions are already apparent through published reports. The Illinois commission has published a brief summary of its findings and recommendations, and intends eventually to publish the results of its investigations in full. It finds much inefficiency and waste to be due to the present lack of effective executive and administrative organization, and recommends "that the hundred executive departments into which the state administration is now divided be reorganized into not more than 12 departments, under department heads appointed by the governor, and responsible to him for the proper conduct of their respective departments." The Minnesota commission has also made a preliminary report, outlining a plan for reorganizing the executive branch of the state government. The plan provides for the grouping of the numerous independent departments, bureaus, boards and commissions into six great departments—finance, public domain, public welfare, education, labor and commerce, and agriculture. Each of the six departments, except that of finance, is to be under a director, appointed by the governor. The Minnesota commission also proposes that all employees shall be under civil service and that the budget system of appropriations be followed. The New Jersey commission has made two reports, the second of which embodies the recommendations of the commission upon the reorganization and consolidation of different departments of the state government whose functions are interrelated. It considers, among other matters, the reorganization of the state Board of Health, and the grouping of the administrative services of the state into various departments. The Massachusetts commission has also made a report upon the "reorganization of boards and commissions having supervision and control of state institutions." The report contains recommendations advising the abolition of the supervisory system of conducting state institutions and the substitution therefor of a centralized system of control. Incidentally, this report had the effect of eliciting a very vigorous reply from the Massachusetts State Board of Charity (Mass. Senate Doc. 440), attacking the position and findings of the commission. The state Department of Economy and Efficiency of New York has recently been engaged in an important investigation of the state hospitals for the insane. The investigation included the examination of the methods of accounting and administration, and a physical examination of machinery and buildings in each of the 14 state hospitals for the insane. An examination of food supplies was conducted in conjunction with the State Hospital Commission and the Attorney-General. In addition to these matters, a broader subject has been investigated, namely that of fiscal control of the state's institutions. This will probably lead to recommendations for a complete change in the financial administration of the state's affairs.

AMENDMENTS TO STATE CONSTITUTIONS

On the following pages are given brief digests of the constitutional amendments submitted to the people of the various states during 1914, with the official returns of the votes thereon, and amendments pending before or passed by the state legislatures for submission in a subsequent year. Many of the important amendments are discussed in detail in other departments of the YEAR BOOK; full references will be found in the Index.

Arizona.—Submitted Nov. 3:

Amending Art. IV, Sec. 6, providing that the veto power of the government or the power of the legislature to repeal or amend shall not extend to initiative or referendum measures approved by a majority vote of the qualified electors. Initiated. Adopted, 16,567 for, 16,484 against.

Amending Art. VII, by adding sections 17, 18, 19 and 20, providing that no prohibition election shall be held for a period of eight years from and after a previous election on the question. Initiated. Defeated, 16,059 for, 26,437 against.

Amending Art. IX, Sec. 5, providing for the issue of bonds to the amount of five million dollars for construction of state highways. Initiated. Defeated, 13,215 for, 23,499 against.

Amending Art. IX, Sec. 5, providing for a state reclamation service and authorizing the state to contract indebtedness for the reclamation of arid lands. Initiated. Defeated, 14,701 for, 17,994 against.

Amending the constitution by adding Art. XXIII, prohibiting the importation, manufacture and sale of intoxicating liquors. Adopted, 25,887 for, 22,743 against.

Arkansas.—Submitted at a state election on Sept. 14:

Amending Art. V, Sec. 15, fixing the compensation of members of the General Assembly at $750 per year and mileage of five cents per mile. Defeated, 43,919 for, 49,101 against.

Amending Art. VI, Secs. 1 to 7, creating the office of Lieutenant-Governor and defining his qualifications, duties and compensation. Defeated, 46,572 for, 45,206 against.

Amending Art. XVI, Sec. 1, authorizing municipalities to issue bonds for certain purposes with the consent of the majority of the qualified electors. Initiated. Adopted, 54,782 for, 40,441 against.

California.—Submitted Nov. 3:

Amending Art. I, Secs. 26 and 27, prohibiting the manufacture, transportation and sale of intoxicating liquors. Initiated. Defeated, 355,536 for, 524,781 against.

Amending Art. I, by adding Sec. 26a, fixing the time of going into effect of the provision of the preceding amendment to Art. I, Secs. 26 and 27, if adopted. Initiated. Adopted, 448,648 for, 226,688 against.

Amending Art. II, by adding Sec. 7, limiting the right of voting on a question of incurring bonded indebtedness by the state or political subdivision thereof to owners of property taxable for payment of such indebtedness and assessed on the last assessment roll. Initiated. Defeated, 312,193 for, 337,951 against.

Amending Art. IV, by adding Sec. 1½, prohibiting another election on the question of prohibition for a period of eight years, and declaring that a majority vote in each municipality or district on the prohibition amendment to Art. I, Secs. 26 and 27, makes it license or non-license territory. Initiated. Defeated, 355,394 for, 435,701 against.

Amending Art. IV, Sec. 23a, increasing the allowance for the total expense of the General Assembly at regular sessions of the legislature from $500 to $600 per day. Defeated, 87,315 for, 494,272 against.

Amending Art. IV, Sec. 31, authorizing irrigation districts to acquire stock in foreign corporations for the purpose of controlling international water systems. Adopted, 349,684 for, 185,168 against.

Amending Art. V, Sec. 20, providing for the election of United States Senators in the manner prescribed by law. Adopted, 404,283 for, 190,969 against.

Amending Art. VI, by adding Sec. 4a, providing for the holding of extra sessions of the district courts of appeal. Defeated, 203,674 for, 322,891 against.

Amending Art. VI, Sec. 4½, relating to the setting aside of judgments for error. Adopted, 378,237 for, 182,073 against.

Amending Art. XI, Sec. 6, authorizing the legislature to provide that county officers shall perform certain functions of included municipalities. Adopted, 284,757 for, 214,312 against.

Amending Art. XI, Sec. 7½, authorizing county charters to provide for the discharge by county officers of certain functions in included municipalities. Adopted, 261,219 for, 225,530 against.

Amending Art. XI, Sec. 8, prescribing the manner of the adoption of charters by cities of more than 3,500 population and providing for municipal home rule. Adopted, 285,338 for, 226,679 against.

Amending Art. XI, Sec. 8½, authorizing chartered cities to establish municipal courts and to control the appointment, the qualifications and tenure of municipal offices and prescribing the manner in which cities exceeding 50,000 population may annex contiguous territory. Initiated. Adopted, 293,019 for, 287,185 against.

Amending Art. XI, Sec. 8½, authorizing chartered cities to establish munici-

pal courts and control the appointment, qualifications and tenure of municipal officers and prescribing the manner in which cities exceeding 175,000 population may annex contiguous territory. Initiated. Defeated, 248,112 for, 318,224 against.

Amending Art. XI, Sec. 13, providing for the regulation of irrigation, reclamation or drainage districts. Adopted, 335,047 for, 216,865 against.

Amending Art. XI, Sec. 13½, relating to the place and manner of payment of bonds issued by counties and municipalities and other public corporations and interest thereon. Adopted, 306,195 for, 206,479 against.

Amending Art. XI, Sec. 16½, prescribing the security to be furnished by banks in which public moneys are deposited. Initiated. Defeated, 236,573 for, 324,558 against.

Amending Art. XI, Sec. 18, authorizing Alameda County to issue bonds to the amount of one million dollars for the subvention of the Panama-Pacific Exposition. Adopted, 390,835 for, 202,128 against.

Amending Art. XI, Sec. 19, authorizing municipal corporations to acquire and operate public utilities. Defeated, 231,724 for, 278,129 against.

Amending Art. XI, by adding Sec. 20, authorizing the state, counties or municipalities to condemn property in excess of actual requirements for public purposes. Defeated, 259,192 for, 307,155 against.

Amending Art. XII, Sec. 23, giving the Railroad Commission exclusive power to fix public-utility rates in all incorporated municipalities. Adopted, 291,665 for, 260,589 against.

Amending Art. XII, by adding Sec. 23a, authorizing the Railroad Commission to exercise such powers as may be conferred upon it by law to fix the compensation for the property of public utilities condemned by the state or its political subdivisions. Adopted, 291,836 for, 244,379 against.

Amending Art. XIII, Sec. 1, declaring taxable all lands and improvements thereon owned beyond their limits by county or municipal corporations. Adopted, 344,433 for, 216,612 against.

Amending Art. XIII, by adding Sec. 1a, exempting educational institutions of collegiate grade from taxation. Adopted, 331,599 for, 293,721 against.

Amending Art. XIII, by adding Sec. 4, exempting from taxation vessels engaged in commerce registered at any port of the state. Adopted, 359,176 for, 301,969 against.

Amending Art. XIII, by adding Sec. 8½, authorizing counties and municipalities to exempt from local taxation improvements on land and certain other classes of property. Defeated, 267,618 for, 375,634 against.

Amending Art. XIII, Sec. 12, prohibiting the levy of a poll or head tax for any purpose. Initiated. Adopted, 405,375 for, 374,487 against.

Amending Art. XVIII, Sec. 2, prescribing the manner of electing delegates to constitutional conventions. Defeated, 271,896 for, 274,325 against.

Amending Art. XX, Sec. 13, authorizing counties and municipalities to establish primary nominations and a preferential system of voting. Defeated, 240,600 for, 294,265 against.

Amending Art. XX, by adding Sec. 17½, authorizing the legislature to provide for the establishment of a minimum wage for women and minors. Adopted, 379,311 for, 295,109 against.

A proposal of the legislature of 1913 that a convention be called to revise the constitution was defeated by a vote of 180,111 to 442,687.

Colorado.—Submitted Nov. 3:

Amending Art. II, Sec. 23, empowering three-quarters of the jury to find a verdict in civil cases, and permitting women, when willing, to serve on juries. Initiated. Defeated, 67,130 for, 77,488 against.

Amending Art. V, Sec. I, prohibiting the resubmission of a rejected initiated measure or amendment to the constitution within six years of its rejection. Initiated. Defeated, 55,667 for, 112,537 against.

Amending Art. V, by adding Sec. 1a, requiring the governor to call a special election on initiated or referred measures on the petition of 25 per cent. of the qualified electors. Initiated. Defeated, 40,643 for, 80,977 against.

Amending Art. X, Sec. 15, defining the personnel and duties of the state and county boards of equalization. Adopted, 55,987 for, 55,275 against.

Amending Art. XI, Sec. 8, defining the power of municipalities to incur indebtedness. Defeated, 38,589 for, 65,206 against.

Amending Art. XV, by adding Sec. 16, making newspapers public utilities. Initiated. Defeated, 35,752 for, 91,426 against.

Amending Art. XIX, Sec. 2, relating to the publication of constitutional amendments and initiated and referred measures. Defeated, 48,301 for, 56,259 against.

Amending the constitution by adding Art. XXII, prohibiting the importation, manufacture and sale of intoxicating liquors. Initiated. Adopted, 129,589 for, 118,017 against.

Connecticut.—Passed by the legislature of 1913, to be submitted to the legislature of 1915:

Amending Art. XXVII, Sec. 3 of the amendments, authorizing the General Assembly to provide by law for the transportation of members by public conveyance between their homes and the capital during legislative sessions.

Florida.—Submitted Nov. 3:

Amending Art. IV, Sec. 16, relating to the appointment by the Governor of commissioned officers of the state militia. Adopted, 10,356 for, 4,798 against.

Amending Art. V, Sec. 1, empowering the legislature to prescribe the compen-

sation of judges. Adopted, 8,998 for, 4,500 against.

Amending Art. VIII, Sec. 6, relating to the election, term of office and duties of county officers. Adopted, 14,164 for, 6,668 against.

Georgia.—Submitted Nov. 3:

Amending Art. III, Sec. 3, providing for representation in the House of Representatives for counties not now provided for or newly created. Adopted, 34,822 for, 10,901 against.

Amending Art. III, Sec. 4, extending the term of members of the General Assembly until the time fixed by law for the convening of the next General Assembly. Adopted, 35,733 for, 17,820 against.

Amending Art. VI, Sec. 13, providing for additional compensation of the Superior Court judge in Bibb Superior Court. Adopted, 28,510 for, 16,472 against.

Amending Art. VI, Sec. 7, authorizing the General Assembly to abolish justice courts in the city of Savannah. Adopted, 31,611 for, 11,173 against.

Amending Art. XI, Sec. 1, providing for the creation of Bacon County from parts of the counties of Appling, Pierce and Ware. Adopted, 37,907 for, 10,170 against.

Amending Art. XI, Sec. 1, providing for the creation of Barrow County from parts of the counties of Gwinnett, Walton and Jackson. Adopted, 40,273 for, 10,116 against.

Amending Art. XI, Sec. 1, providing for the creation of Candler County from parts of the counties of Emanuel, Bulloch and Tattnall. Adopted, 36,694 for, 10,466 against.

Amending Art. XI, Sec. 1, providing for the creation of Evans County from parts of the counties of Bulloch and Tattnall. Adopted, 36,669 for, 9,789 against.

Amending Art. XI, Sec. 2, providing for the election of county officers for terms of four instead of two years. Adopted, 27,520 for, 26,451 against.

Amending Art. XI, Sec. 3, authorizing the General Assembly to abolish the office of county treasurer in any county of the state. Adopted, 35,894 for, 15,953 against.

Idaho.—Submitted Nov. 3:

Amending Art. IV, Sec. 1, extending the term of state officers from two to four years. Defeated, 23,952 for, 55,062 against.

Amending Art. V, Sec. 6, increasing the number of justices of the Supreme Court from three to five. Defeated, 17,170 for, 60,619 against.

Amending Art. IX, Sec. 7, removing the Superintendent of Public Instruction from membership on the State Board of Land Commissioners. Defeated, 31,528 for, 44,168 against.

Indiana.—As provided by the act of March 15, 1913, the question of a call for a constitutional convention in November, 1915, was submitted to the people on Nov. 3. The proposal was defeated by a vote of 235,140 for to 338,947 against.

Iowa.—Passed by the legislature of 1913, to be submitted to the legislature of 1915:

Amending Art. II, Sec. 1, extending the suffrage to women.

Amending Art. II, Sec. 7, relating to the time of holding general elections.

Amending Art. III, Sec. 1, providing for the initiative and referendum.

Amending Art. III, by adding Sec. 39, authorizing the General Assembly to provide for the exclusive taxation of classes of property for state revenue purposes.

Kansas.—Submitted Nov. 3:

Amending Art. XI, Secs. 1 and 2, empowering the legislature to establish a system for raising state and local revenue and to classify the subjects of taxation. Defeated, 156,969 for, 166,800 against.

Amending Art. IV, Secs. 3, 4 and 5, providing for the recall of public officers. Adopted, 240,240 for, 135,630 against.

Kentucky.—The two amendments relating to the classification of property and the use of convict labor on public roads and bridges approved by the people on Nov. 4, 1913 (*A. Y. B.*, 1913, p. 200) were declared invalid by the Court of Appeals on Jan. 14 on the ground that they were not advertised at least 90 days before the election as required by the constitution. They were again passed by the legislature of 1914 and will be submitted a second time in 1915.

Louisiana.—Submitted Nov. 3:

Amending Sec. 65, raising the salary of the Governor from $5,000 to $7,500 per annum. Adopted, 17,772 for, 13,510 against.

Amending Sec. 109, providing for an additional judge in certain judicial districts. Adopted, 18,493 for, 11,550 against.

Amending Sec. 109, providing for an additional judge in the 13th district. Defeated, 7,519 for, 22,128 against.

Amending Sec. 125, authorizing the legislature to create the office of assistant district attorney in each judicial district. Adopted, 17,564 for, 11,962 against.

Amending Sec. 210, granting to women the right to hold any office connected with the public educational system of the state and with institutions of charity or correction. Defeated, 12,539 for, 19,654 against.

Amending Sec. 223, providing for the recall of all elective public officers except judges. Adopted, 23,208 for, 7,650 against.

Amending Sec. 232, permitting the levying of taxes by parishes and municipalities in excess of limitation for the benefit of fire departments and buildings. Adopted, 17,671 for, 10,851 against.

Amending Sec. 255, relating to the support of public schools and the levying of taxes therefor by parishes, cities and towns. Adopted, 21,794 for, 8,386 against.

Amending Sec. 281, amplifying the creation of drainage districts and permitting the bonds thereof to be sold at 90 per cent. of par. Adopted, 19,368 for, 9,366 against.

Amending Sec. 303, relating to the granting of pensions to Confederate veterans. Adopted, 23,412 for, 8,012 against.

Amending the constitution to define the extent and limitation of taxation on banks, banking associations, corporations or companies doing business in the state, but domiciled in other states or in foreign countries. Adopted, 24,615 for, 7,539 against.

Amending the constitution to exempt from taxation all money in hand or on deposit and loans by homestead associations to their members secured by stock of the association. Adopted, 23,714 for, 7,947 against.

Amending the constitution to exempt from taxation for ten years certain new canals for irrigation, navigation and power purposes. Adopted, 21,429 for, 9,247 against.

Amending the constitution to authorize the Board of Commissioners of the Port of New Orleans to construct and operate a canal connecting Lake Pontchartrain and the Mississippi River. Adopted, 20,913 for, 8,577 against.

Amending the constitution to provide for the registration and licensing of automobiles. Adopted, 22,544 for, 7,723 against.

Amending the constitution to authorize the city of New Orleans to issue bonds to the amount of three million dollars for the creation of a Lake Shore Park and the levying of a special tax therefor. Defeated, 7,667 for, 21,953 against.

Amending the constitution relative to the issue of bonds by the city of New Orleans for the support of public schools. Adopted, 19,876 for, 8,489 against.

Maryland.—Submitted Nov. 3:

Amending Art. IV, Sec. 44, Pt. vii, prescribing the mode of election, terms of office, and duties of sheriffs in counties and in the city of Baltimore. Adopted, 62,694 for, 40,428 against.

Passed by the legislature of 1914, to be submitted in 1915:

Amending the constitution by adding Art. XI-A, granting Baltimore City and counties power to legislate in local affairs and to create municipal charters.

Amending Art. III by adding Sec. 60, empowering the General Assembly to provide by law for suspended sentences, for indeterminate sentences and for the parole of prisoners.

Amending the constitution by adding Art. XVI, providing for the referendum.

Amending Art. XV of the Declaration of Rights, providing for the classification of property for taxation.

Massachusetts.—Passed by the legislature of 1914, to be submitted to the legislature of 1915:

Amending Pt. I, Art. X, authorizing the state and municipalities to condemn property in excess of actual requirements for public purposes.

Amending Art. III of the amendments, extending the suffrage to women.

Amending the constitution to authorize the enactment of laws empowering the state to take and improve land for the purpose of relieving congestion and providing homes for citizens.

Amending the constitution to authorize the enactment of laws imposing an income tax and providing for the classification of property.

Michigan.—Submitted Nov. 3:

Amending Art. III, Sec. 1, providing that students, members of the legislature and commercial travelers shall not be prevented from voting by reason of absence from home. Adopted, 190,510 for, 175,948 against.

Amending Art. VIII, by adding Sec. 15a, authorizing counties to issue bonds for the construction of drains and the development of agricultural lands. Defeated, 165,290 for, 199,873 against.

Amending Art. X, Sec. 10, authorizing the state to issue bonds for the construction and improvement of public wagon roads. Defeated, 164,333 for, 202,087 against.

Amending the constitution relative to the incorporation, regulation and supervision of fraternal beneficiary societies. Defeated, 92,392 for, 291,776 against.

Minnesota.—Submitted Nov. 3:

Amending Art. IV, Sec. 1, providing for the initiative and referendum. Defeated, 168,004 for, 41,577 against.

Amending Art. IV, Sec. 2, relating to the number and apportionment of state senators and representatives. Defeated, 98,144 for, 84,436 against.

Amending Art. VI, Sec. 2, increasing the number of associate justices of the Supreme Court from four to six and providing that no statute shall be held unconstitutional with less than five judges concurring. Defeated, 127,352 for, 68,886 against.

Amending Art. VI, Sec. 7, extending the term of office of probate judge to four years from two. Defeated, 128,601 for, 64,214 against.

Amending Art. VII by adding Sec. 10, providing for the recall of public officials. Defeated, 139,801 for, 44,961 against.

Amending Art. VIII, Sec. 2, authorizing the setting apart of a fund of $250,000 to be used in constructing roads, ditches and fire breaks for unsold school and swamp lands. Defeated, 162,951 for, 47,906 against.

Amending Art. VIII, Sec. 6, relating to the investment of school funds and authorizing the investment and loaning of school funds on improved farm lands within the state. Defeated, 159,531 for, 38,145 against.

Amending Art. VIII, Sec. 8, authorizing the setting apart of certain of the state's lands as state forests. Adopted, 178,954 for, 44,033 against.

Amending Art. IX by repealing Sec. 11, providing for the publication of the annual report of the state treasurer in a St. Paul newspaper. Defeated, 131,213 for, 58,827 against.

Amending Art. IX by adding Sec. 17a, relating to the payment of bounties by the state to encourage the planting, cultivation and protection of forest trees. Defeated, 108,352 for, 63,782 against.

Amending Art. IX, Sec. 18, authorizing the enactment of laws taxing dogs and providing for the payment from funds thus derived of damages sustained by owners of other domestic animals by reason of injuries caused by dogs. Defeated, 136,671 for, 59,786 against.

Mississippi.—Submitted Nov. 3:

Amending Sec. 31, authorizing the legislature to provide by law that in all civil suits nine or more jurors may agree upon a verdict. Adopted.

Amending Sec. 33, providing for the initiative and referendum. Defeated.

Amending Sec. 145, requiring the judges of the Supreme Court to be elected by the people. Adopted.

Amending Sec. 149 (contingent on the adoption of the amendment to Sec. 145), fixing the term of office of the judges of the Supreme Court. Adopted.

Amending the constitution (contingent on the adoption of the amendment to Sec. 145), by eliminating Sec. 151. Adopted.

Amending Sec. 165 (contingent on the adoption of the amendment increasing the number of Supreme Court judges), by eliminating certain provisions on the number of judges constituting a quorum. Adopted.

Amending Sec. 255, relating to the apportionment of state senators. Adopted.

Amending the constitution by adding an additional section, increasing the number of judges of the Supreme Court from three to six. Adopted.

Amending the constitution (contingent on the adoption of the amendment increasing the number of judges of the Supreme Court) by the addition of a new section, authorizing the Supreme Court to sit for the trial of causes in two divisions. Adopted.

Missouri.—Submitted Nov. 3:

Amending Art. IV, Sec. 16, fixing the salary of members of the legislature at $1,000 per annum. Defeated, 89,629 for, 355,326 against.

Amending Art. IV, Sec. 44, authorizing the state to issue bonds to the amount of $50,000,000 for road construction. Initiated. Defeated, 76,574 for, 378,530 against.

Amending Art. IV, Sec. 47, authorizing the legislature to pension the deserving blind. Defeated, 214,951 for, 255,717 against.

Amending Art. IV, Sec. 57, providing that initiative and referendum petitions shall be filed with the county clerk instead of with the Secretary of State, prohibiting the use of the initiative to enact any measure establishing the single tax, and prohibiting the resubmission of rejected initiated or referred measures for a period of five years. Defeated, 138,039 for, 334,310 against.

Amending Art. VIII by adding Sec. 2a, extending the suffrage to women. Initiated. Defeated, 182,257 for, 322,463 against.

Amending Art. IX, Sec. 16, providing for easier amendment of charters of cities having over 100,000 inhabitants. Defeated, 140,475 for, 290,562 against.

Amending Art. X, Sec. 12, increasing the debt limit of cities of above 100,000 population for the purpose of constructing subways. Defeated, 117,197 for, 316,959 against.

Amending Art. X, Sec. 12, authorizing Kansas City to incur indebtedness for acquisition of water works, gas works, street railways and other public utilities Defeated, 123,596 for, 312,651 against.

Amending Art. X, by adding Sec. 23, providing for a special annual levy, by a majority vote of qualified voters, not to exceed 65 cents on $100 of assessed valuation for road purposes. Defeated, 117,041 for, 333,576 against.

Amending Art. X by adding Sec. 27, providing for state tax of 10 cents on each $100 of assessed valuation for a road-improvement fund. Defeated, 112,497 for, 346,995 against.

Amending Art. X by adding Sec. 27, authorizing the levy of special taxes for road purposes and the issuance of bonds therefor on petition of 51 per cent. of the taxpaying voters. Initiated. Defeated, 80,935 for, 373,302 against.

Montana.—Submitted Nov. 3:

Amending the constitution to extend suffrage to women. Adopted, 41,302 for, 37,588 against.

Nebraska.—Submitted Nov. 3:

Amending Art. I, Sec. 6, providing that in all civil cases and in criminal cases less than felonies, five-sixths of the jury may render a verdict, and empowering the legislature to authorize trial by a jury of less than 12 men in courts inferior to the district court. Defeated, 102,891 for, 63,596 against.

Amending Art. V, Sec. 1, fixing the terms of office and salaries of the governor and other executive officers. Defeated, 89,385 for, 76,013 against.

Amending Art. VII, Sec. 1, extending the suffrage to women. Initiated. Defeated, 90,738 for, 100,842 against.

Amending Art. IX, Sec. 1, providing for uniform taxation and authorizing graduated and progressive taxes on incomes, privilege and occupations. Defeated, 88,068 for, 82,136 against.

Nevada.—Submitted Nov. 3:

Amending Art. II, Sec. 1, extending the suffrage to women. Adopted, 10,936 for, 7,257 against.

Amending Art. XV, Sec. 2, changing the form of official oath. Adopted, 10,161 for, 3,670 against.

Passed by the legislature of 1913, to be submitted to the legislature of 1915:

Amending Art. IX, Sec. 3, changing the state debt limit from $300,000 to one per cent. of the assessed valuation.

Amending Art. XI, Sec. 3, relating to the use of certain revenues for educational purposes.

New Jersey.—Passed by the legislature of 1914, to be submitted to the legislature of 1915:

Amending Art. II, extending the suffrage to women.

Amending Art. IV, Sec. 3, relating to the apportionment of members of the General Assembly.

Amending Art. IV, Sec. 7, giving municipalities the power to alter their form of government and establishing municipal home rule.

Amending Art. IV, by adding Sec. 9, authorizing the state, counties and municipalities to condemn property in excess of actual requirements.

Amending Art. IX, prescribing the procedure for the amendment of the constitution and prohibiting the resubmission of rejected amendments within a period of five years.

New Mexico.—Submitted Nov. 3:

Amending Art. V, Sec. 1, changing the term of state officers from four to two years. Adopted, 18,468 for, 13,593 against.

Amending Art. VIII, Secs. 1-7, relating to taxation and revenue. Adopted, 20,282 for, 12,125 against.

Amending Art. X, changing the term of county officers from four to two years. Adopted, 18,474 for, 12,257 against.

New York.—Passed by the legislature of 1913, for submission to the legislature of 1915:

Amending Art. II, Sec. 1, extending the suffrage to women.

Amending Art. VII, by adding Sec. 7 A, permitting the removal of mature, dead or fallen timber from the forest reserve, the leasing of camp sites therein and the sale of lands outside the limits of the Adirondack and Catskill Parks.

Passed by the legislature of 1914, to be submitted to the legislature of 1915:

Amending Art. VII, Sec. 4, authorizing the legislature to alter the rate of taxation for the service and amortization of debts contracted for specific purposes.

Pursuant to the act of Dec. 17, 1913, a special election was held on April 7 on the question of a call for a constitutional convention to be held in April, 1915. Less than one-fifth of the qualified voters participated in the election. The proposal was carried by a majority of 1,353, the vote standing 153,322 for, to 151,969 against. Delegates to the convention were elected accordingly on Nov. 3. The convention will comprise 116 Republicans and 52 Democrats; no Progressives were elected.

North Carolina.—Submitted Nov. 3:

Amending Art. I, Sec. 6, by substituting the words "war between the states," for "insurrection or rebellion against the United States." Defeated, 57,816 for, 61,031 against.

Amending Art. II, Sec. 28, increasing the compensation and reducing the mileage allowance of members of the General Assembly. Defeated, 50,722 for, 68,149 against.

Amending Art. II, by adding Sec. 29, restricting local, private and special legislation. Defeated, 54,726 for, 62,953 against.

Amending Art. III, Sec. 1, fixing the day of inauguration of the governor. Defeated, 57,321 for, 60,220 against.

Amending Art. IV, Sec. 11, providing for the appointment of emergency judges to prevent delay in trials. Defeated, 56,255 for, 62,981 against.

Amending Art. IV, by the elimination of obsolete sections 20, 26 and 33. Defeated, 54,414 for, 62,728 against.

Amending Art. V, and Art. VII, Sec. 9, by substituting new Art. V, revising and reforming the system of revenue and taxation. Defeated, 50,520 for, 68,148 against.

Amending Art. VIII, Sec. 1, prohibiting the creation of corporations by special act. Defeated, 54,358 for, 63,201 against.

Amending Art. VIII, Sec. 4, imposing on the legislature the duty of providing general laws for organization of cities, towns and incorporated villages. Defeated, 53,887 for, 63,027 against.

Amending Art. IX, Sec. 3, requiring a public school term of six months. Defeated, 59,519 for, 61,317 against.

North Dakota.—Submitted Nov. 3:

Amending Art. II, Sec. 25, providing for the initiative on legislative measures and the referendum. Adopted, 48,783 for, 19,964 against.

Amending Art. XI, Secs. 176 and 179, authorizing the legislature to provide by law for the classification of property for purposes of taxation. Adopted, 45,162 for, 18,135 against.

Amending Art. XII, Sec. 185, authorizing the state to appropriate funds and levy taxes for the construction and im-

provement of public roads. Adopted, 47,387 for, 21,054 against.

Amending Art. XV, Sec. 202, providing for the initiative and constitutional amendments. Adopted, 43,111 for, 21,815 against.

Amending Art. XIX, Sec. 216, changing the name of the state blind asylum. Adopted, 42,365 for, 21,779 against.

Amending the constitution to empower the legislature to provide by law for the erection and operation of terminal grain elevators within the state. Adopted, 51,507 for, 18,483 against.

At the same election the question of extending suffrage to women was submitted to the voters. It was rejected by a vote of 40,009 to 49,410.

Ohio.—Submitted Nov. 3:

Amending Art. V, Sec. 1, extending the suffrage to women. Defeated, 335,390 for, 518,295 against.

Amending Art. XII, Secs. 1 and 2, providing for a limitation of the tax rate and the classification of property for purposes of taxation. Defeated, 223,873 for, 551,760 against.

Amending Art. XV, Sec. 9, prohibiting the sale, manufacture and importation of intoxicating liquors. Defeated, 504,177 for, 588,329 against.

Amending Art. XV, Sec. 9a, establishing local option on the question of prohibition. Adopted, 559,872 for, 547,254 against.

Oklahoma.—Submitted Nov. 3:

Amending Art. V, and Art. VI, Secs. 7 and 11, reducing the legislature to a house of representatives of 80 members and a subordinate legislative body of 15 commissioners to be selected therefrom, and fixing the qualifications, compensation, privileges and powers thereof. Initiated. Defeated, 94,686 for, 71,742 against.

Amending Art. VII, Secs. 3 and 5, and repealing Secs. 22 and 23, abolishing the two final appellate courts and substituting a Supreme Court of ten members. Initiated. Defeated, 105,528 for, 64,782 against.

Amending Art. X, Sec. 9, reducing the maximum state tax rate to 2½ mills and prohibiting the legislature from making appropriation in excess thereof. Initiated. Defeated, 117,675 for, 57,120 against.

Amending Art. X, by adding Sec. 20b, providing for the levying of a mine-production tax not exceeding two per cent. of gross value on natural gas, petroleum and other crude oils. Initiated. Defeated, 107,342 for, 62,380 against.

Oregon.—Submitted Nov. 3:

Amending Art. I, Sec. 32, omitting the requirement that "all taxation shall be equal and uniform," providing for the levying and collection of taxes under general law for public purposes only and prohibiting surrender of the taxing power. Defeated, 59,206 for, 116,490 against.

Amending Art. I, by adding Sec. 36, prohibiting the manufacture and sale of intoxicating liquors. Initiated. Adopted, 136,842 for, 100,362 against.

Amending Art. I, by adding Sec. 36, abolishing the death penalty for murder. Initiated. Adopted, 100,552 for, 100,395 against.

Amending Art. II, Sec. 2, requiring voters to be citizens of the United States in all elections unless otherwise provided in the constitution. Adopted, 164,879 for, 39,847 against.

Amending Art. II, by adding Sec. 16a, providing for proportional representation in the legislative assembly. Initiated. Defeated, 39,740 for, 137,116 against.

Amending Art. IV, Sec. 29, fixing the compensation of members of the legislature at $5 per day and a mileage rate of 10 cents per mile and limiting the amount of compensation for regular and special sessions. Defeated, 41,087 for, 146,278 against.

Amending Art. IV, by adding Sec. 32, abolishing the state senate. Initiated. Defeated, 62,376 for, 123,429 against.

Amending Art. V, Sec. 8, creating the office of Lieutenant-Governor and defining his duties. Defeated, 52,040 for, 143,804 against.

Amending Art. VI, Sec. 6, extending the term of county officers from two to four years. Initiated. Defeated, 82,841 for, 107,039 against.

Amending Art. IX, Sec. 1, authorizing the levying of taxes on such property and in such manner as may be prescribed by general laws, the classification of property for purposes of taxation and the imposition of specific taxes on incomes. Defeated, 52,362 for, 122,704 against.

Amending Art. IX, Sec. 1, providing for the equal assessment and taxation of all property with certain exemptions and requiring a two-thirds vote for amendment or repeal of this section. Initiated. Defeated, 43,280 for, 140,507 against.

Amending Art. IX, by adding Sec. 1b, providing for the assessment and taxation of land and exemption of improvements and personal property up to the value of $1,500. Initiated. Defeated, 65,495 for, 136,193 against.

Amending Art. IX, by adding Sec. 2, levying graduated specific taxes on owners of realty assessed at over $25,000. Initiated. Defeated, 59,186 for, 124,943 against.

Amending Art. XI, Sec. 2, authorizing the enactment of a general law to enable a municipality to surrender its charter and be merged in an adjoining city or town by a majority vote of the qualified electors of both places. Adopted, 96,116 for, 77,671 against.

Amending Art. XI, Sec. 7, increasing the state debt limit for the purposes of building roads, constructing irrigation and power projects and developing untilled lands to four per cent. of the assessed valuation of property. Defeated, 49,759 for, 135,550 against.

Amending Art. XI, by adding Secs. 8a and 8b, prohibiting the sale of the beds of navigable waters, and providing

for the construction of municipal or private docks on such lands. Defeated, 67,128 for, 114,564 against.

Amending Art. XV, Sec. 6, providing that the boundaries of counties containing cities of more than 100,000 population may be made identical with the boundaries of the cities and the two governments consolidated. Defeated, 77,392 for, 103,194 against.

Amending Art. XV, Sec. 9, prohibiting any man, woman or child from being employed more than eight hours in any one day or 48 hours in any one week. Initiated. Defeated, 49,360 for, 167,888 against.

Amending the constitution by adding Art. XIX, creating a Department of Industry and Public Works to provide for the employment of unemployed citizens of the state. Initiated. Defeated, 57,859 for, 126,201 against.

Pennsylvania.—Passed by the legislature of 1913, to be submitted to the legislature of 1915:

Amending Art. III, Sec. 21, empowering the General Assembly to enact laws relating to employers' liability and the compensation of workmen for injuries and occupational diseases.

Amending Art. IV, by adding Sec. 23, abolishing the office of secretary of internal affairs.

Amending Art. VIII, Sec. 1, extending the suffrage to women.

Amending Art. IX, Sec. 8, establishing debt limits for counties, townships, school districts and municipalities and for the city of Philadelphia.

Amending the constitution to authorize the enactment of laws providing for the register and guarantee of land titles by the state or counties.

Rhode Island.—Passed by the legislature of 1914, to be submitted to the legislature of 1915:

Amending the constitution to authorize the state and municipalities to condemn propery in excess of actual requirements for public purposes.

South Carolina.—Submitted Nov. 3:

Amending Art. II, Sec. 8, providing for the maintenance of the South Carolina School for the Deaf and Blind. Adopted, 10,730 for, 3,194 against.

Amending Art. III, Sec. 20, providing that in all elections by the General Assembly in which only one candidate is nominated, the election shall be viva voce and without any roll call. Adopted, 5,348 for, 4,130 against.

Amending Art. VIII, Sec. 7, exempting the school district of Yorkville from the limitation on bonded indebtedness when such bonds are issued for the purpose of erecting school buildings and with the consent of a majority of the qualified electors. Adopted, 5,324 for, 4,283 against.

Amending Art. VIII, Sec. 7, exempting the city of Florence from the limitation on bonded indebtedness when such bonds are issued for the purpose of certain specified municipal improvements and approved by a majority of the qualified electors. Adopted, 5,455 for, 3,563 against.

Amending Art. VIII, Sec. 7, exempting the cities of Chester and Sumter from the limitations on bonded indebtedness and permitting them to increase their bonded debt to an amount not exceeding 15 per cent. of the assessed valuation, when such bonds are issued for the improvement of streets for which the abutting property owners are assessed at least one-half of the cost. Adopted, 5,273 for, 3,725 against.

Amending Art. X, by adding Sec. 15a, empowering the towns of Lata and Dillon to assess abutting property for permanent improvements. Adopted, 5,606 for, 3,879 against.

Amending Art. X, by adding Sec. 16, empowering the cities of Florence and Orangeburg and the town of Landrum to assess abutting property for permanent improvements. Adopted, 5,971 for, 4,296 against.

Amending Art. X by adding Sec. 16, empowering the cities of Sumter and Darlington and the towns of Benton and Wahalla to assess abutting property for permanent improvement. Adopted, 2,089 for, 665 against.

Amending Art. X, by adding Sec. 16, empowering the cities of Anderson and Greenwood and the towns of Bennettsville, Timmonsville and Honea Path to assess abutting property for permanent improvements. Adopted, 5,373 for, 4,013 against.

Amending Art. X, by adding Sec. 17, empowering the town of Fort Mill to assess abutting property for permanent improvements. Adopted, 5,289 for, 3,752 against.

Amending Art. XII, Sec. 1, by striking out the words "deaf, dumb and blind." Adopted, 8,217 for, 3,400 against.

South Dakota.—Submitted Nov. 3:

Amending Art. III, Sec. 1, providing for the initiative and referendum in municipalities. Defeated, 28,226 for, 43,162 against.

Amending Art. III, Sec. 6, providing that the term of office of members of the legislature shall be four years, one-half retiring biennially. Defeated, 29,746 for, 45,051 against.

Amending Art. V, Sec. 7, authorizing the legislature to provide for the selection of persons to act in place of judges of the Supreme Court disqualified by reason of interest or otherwise. Defeated, 36,317 for, 36,543 against.

Amending Art. VII, Sec. 1, extending the suffrage to women. Defeated, 39,605 for, 51,519 against.

Amending Art. VIII, Sec. 5, relating to the sale of school and public lands. Adopted, 45,554 for, 35,102 against.

Amending Art. IX, Sec. 5, relating to the election and term of office of county officers. Defeated, 32,092 for, 45,733 against.

Amending Art. XIV, Secs. 2 and 3, providing a state board of control for state institutions. Defeated, 29,601 for, 44,107 against.

Amending Art. XXI by adding section 7, authorizing the legislature to provide for irrigation districts empowered to levy special assessments for the irrigation of agricultural lands. Defeated, 32,958 for, 40,457 against.

A proposal submitted by the legislature for the call of a constitutional convention was defeated by a vote of 34,832 to 51,585.

Texas.—Submitted Nov. 3:

Amending Art. III, Sec. 1, providing for the initiative on legislative measures and the referendum. Defeated, 62,166 for, 66,779 against.

Amending Art. III, Sec. 24, granting members of the legislature a salary of $1,200 per annum, and mileage not exceeding five cents per mile. Defeated, 37,221 for, 89,307 against.

Amending Art. XI by adding Sec. 7a, authorizing counties bordering on the Gulf of Mexico to build sea walls and designate sea-wall reclamation districts for the protection of life and property. Defeated, 47,130 for, 77,958 against.

Virginia.—Passed by the legislature of 1914, to be submitted to the legislature of 1915:

Amending Art. IV, Sec. 46, extending the length of the session of the General Assembly from 60 to 90 days.

Amending Art. IV, Sec. 50, prescribing the course of bills.

The question of state-wide prohibition was submitted at a state election on Sept. 22 and carried by a vote of 94,251 to 63,880.

Washington.—Submitted Nov. 3:

Amending Art. II, Sec. 33, enabling resident aliens to acquire and hold lands lying within municipal corporations and providing for the escheat of such lands to the common school fund in case the owner thereof becomes a non-resident of the state for a period of five years. Defeated, 55,080 for, 212,542 against.

Wisconsin.—Submitted Nov. 3 (the figures of the popular vote are unofficial):

Amending Art. IV, Sec. 1, providing for the initiative on legislative measures and the referendum. Defeated, 81,155 for, 143,800 against.

Amending Art. IV, Sec. 21, fixing the salary of members of the legislature at $600 per annum and a mileage rate of two cents. Defeated, 65,193 for, 153,166 against.

Amending Art. VII, Secs. 6 and 7, empowering the legislature to alter the limits and number of judicial circuits and providing for the election by qualified electors of one or more circuit judges. Defeated, 60,143 for, 150,764 against.

Amending Art. VIII by adding Sec. 11, permitting the state to grant annuities and insurance upon such risks and in such manner as may be prescribed by law. Defeated, 56,990 for, 163,992 against.

Amending Art. VIII by adding Sec. 13, permitting the state to grant insurance upon such risks and in such manner as may be prescribed by law. Defeated, 55,230 for, 161,055 against.

Amending Art. XI, by adding Sec. 3a, empowering cities and villages to amend their charters and to frame and adopt new charters and to enact laws and ordinances relating to municipal affairs. Defeated, 82,247 for, 138,307 against.

Amending Art. XI by adding Sec. 3b, providing that when private property is taken for public use by municipal corporations, additional adjoining or neighboring property may be taken under conditions to be prescribed by the legislature. Defeated, 58,306 for, 150,621 against.

Amending Art. XII, Sec. 1, providing that amendments to the constitution may be proposed in either house of the legislature and if agreed to by three-fifths of the members elected to each of the two houses shall be submitted to the electors at the next general election. Defeated, 68,639 for, 156,068 against.

Amending Art. XII, by adding Sec. 3, providing for the initiative on constitutional amendments. Defeated, 65,008 for, 146,163 against.

Amending Art. XIII by adding Sec. 12, providing for the recall of public officers. Defeated, 77,876 for, 140,344 against.

Wyoming.—Submitted Nov. 3:

Amending Art. III, Sec. 6, limiting regular sessions of the legislature to 60 days and providing for the compensation of members. Defeated, 16,996 for, 8,479 against.

Amending Art. X, Sec. 4, directing the legislature to provide by law for the accumulation and maintenance of a fund for the compensation of injured workmen in extra-hazardous employments. Adopted, 24,258 for, 3,915 against.

Amending Art. XV, Sec. 15, authorizing the legislature to levy a special tax on live stock for the purpose of raising money to aid in the destruction of predatory wild animals. Defeated, 20,419 for, 8,331 against.

Amending Art. XVI, Sec. 6, defining the power of the state to make donations and engage in works of internal improvement and authorizing the issuance of bonds and the levying of taxes for the construction of public roads. Defeated, 16,882 for, 7,507 against.

VII. MUNICIPAL GOVERNMENT

CLINTON ROGERS WOODRUFF

MUNICIPAL HOME RULE

Ohio.—Since the Ohio municipal home-rule amendment went into effect on Jan. 1, 1913, 25 cities of the state have had under consideration the proposal to frame charters for their own government. In eight of these cities, namely, Amherst, Gallipolis, Ironton, Jackson, Mansfield, Marietta, Norwood and Washington, the voters rejected a proposal to elect a commission of 15 to frame new charters. In seven, namely, Akron, Canton, Cincinnati, Elyria, Lorain, Salem and Youngstown, charter commissions were elected, but the charters which they framed were subsequently rejected by the people. In nine others, Cleveland, Columbus, Dayton, Lakewood, Middletown, Springfield, Sandusky, Ashtabula and Toledo, charters have been adopted. According to the interpretation of the attorney-general, the cities of Ohio may provide schemes of assessment for public improvements different from the schemes provided by law, provided they do not violate any constitutional provisions. (See also *Charter Revision, infra.*)

New York.—The Municipal Empowering Act (the Cullen Levy Bill, *A. Y. B.*, 1913, p. 204) has been upheld as constitutional by Justice Greenbaum of the New York Supreme Court (*N. Y. Law Journal*, Sept. 25, 1913); in this decision he upheld in every respect the contentions of the Municipal Government Association. The Optional City Charter Bill (*A. Y. B.*, 1913, p. 204) has become a law (see *Charter Revision, infra*).

Mayor John Purroy Mitchel of New York City has started a campaign for city home rule. In April, 1915, a state constitutional convention will be held and he aims at securing an amendment of the provisions of the present constitution which will confer greater powers of self-government on the municipalities of the state. In a recent speech the mayor said:

> We want in New York State home rule for cities as broad and complete as that conferred upon the cities of Ohio in 1912. It is the right of the people of the cities to manage their local affairs. That right is the essence of political democracy and that real municipal home rule should be firmly established in the fundamental law of the state. We declare it should include the right of the cities to formulate, adopt and amend their own charters and enact laws regulating their own local affairs, the right to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary and other similar regulations as local experience may demonstrate are wise, just and necessary; the right to control the organization and budget of all municipal departments and the right of autonomy as to the policy to be pursued in relation to franchise control, ownership or operation of public utilities and similar matters primarily of local concern.

Maryland.—An amendment to the constitution giving Baltimore the right of home rule has been passed by the legislature and will be voted upon at the general election in 1915.

Illinois.—The question of a home-rule amendment was submitted on the "little ballot" at the April election and received a majority of 8,168. This practically amounts to a straw vote. The vote grew out of the discussion of the public-utilities law of 1913, which it is claimed violates the right of municipal home rule for Chicago.

Wisconsin.—A constitutional amendment, that "cities and villages have power and authority to amend their charters, and to frame and adopt new charters, and to enact all laws and ordinances relating to their municipal affairs, subject to the constitution and the general laws of the state," was defeated at the election on Nov. 3 by a vote of 138,307 to 82,247.

Iowa.—The League of Iowa Municipalities at its 1914 meeting passed a resolution to the effect that it would work for home rule in Iowa and at the next meeting of the legislature it will present bills with this end in view. Municipal officials are reported as generally in favor of home rule and opposed to the idea of a state utilities commission, believing that these questions can be better settled by local authorities.

Minnesota.—The Minnesota League of Municipalities has declared in favor of the local control of public utilities and a Home Rule League to achieve the same purpose has been formed.

CHARTER REVISION

St. Louis.—St. Louis voted on June 30 to adopt a new charter which establishes a much simpler form of government with direct-legislation features. It is not exactly a short-ballot charter, although it provides for a greater concentration of authority and responsibility than the old one. There is a single legislative chamber, in place of an elaborate and complicated bicameral plan, composed of one member from each of 28 wards, although the members must be elected at large on a city ticket, a unique feature in American charters. Special pains were taken with the direct legislation provisions so as to strengthen them on the one hand, and on the other, to protect the electorate from certain abuses which have crept in elsewhere. The initiative, for instance, is established on what is believed to be a workable basis, petition of five per cent. of the registered voters for a general election and seven per cent. for a special; but the board of aldermen are to have an opportunity to pass initiated ordinances and thus save the expense of an election. If not so passed, the proposed ordinance must be submitted to the voters. No ordinance (except strictly emergency measures) is to take effect for 30 days after passage by the board of aldermen. If within that time a petition signed by two per cent. of the registered voters is filed with the board of election commissioners, the taking effect of the ordinance is postponed for 40 days more, which are allowed to secure an additional five per cent. for a special referendum election. After the petition has been filed the board of aldermen are given an opportunity to repeal the ordinance. If they do not repeal it, then its adoption must be submitted to the voters. Equal effort has been made likewise to make the recall practicable and workable. All elective officers may be recalled by a petition signed by 20 per cent. of the registered voters, with 20 per cent. of such voters in at least two-thirds of the wards of the city. No recall petition may be filed within six months after an official takes office. There is no provision for non-partisan nominations, as is the case in practically all other recent charters, because, it appears, that is a state matter and governed by state laws providing for partisan nominations.

Cincinnati.—The Cincinnati charter which was defeated on July 14, although it was supported by the former mayor, Henry T. Hunt, the Bureau of Municipal Research, and the reform forces generally, had many interesting features. It required that candidates be elected by a majority and not by a plurality as usually occurs now. There were provisions for an election pamphlet to be published by the authorities and for the prohibition of the circulating of anonymous campaign literature.

Cleveland.—Cleveland had a charter fight directed to protecting what was adopted a year ago (*A. Y. B.*, 1913, p. 204). Five proposals to change were submitted: (1) to substitute a small council elected by wards; (2) to eliminate non-partisan elections and preferential voting; (3) to abolish civil service for unskilled labor; (4) to transfer the division of health from

the Department of Public Welfare to the Department of Public Safety; and (5) to transfer the management of parks and recreational activities from the Department of Public Welfare to the Department of Public Service. The civil service amendment was the only one adopted at the primary election on Aug. 11.

Columbus.—On May 5 a home-rule charter was adopted for Columbus, under which the city will have a council of seven and a mayor, all elected at large on a non-partisan ballot for a term of four years. The mayor will have merely an advisory veto over the action of council. An important feature of the charter is the requirement that the superintendent of the Division of Public Welfare shall provide for the study of and research into causes of poverty, delinquency, crime and other similar problems in the community. Provision is made also for the appointment of a public defender, whose duty it will be to see that only justice is meted out to individuals charged with offenses in the municipal court and whose means are too limited to secure aid in preparing a proper defense.

Toledo.—Toledo's charter commission recommended the straight federal plan. It provides a real short ballot, for each elector is required to vote only for mayor, vice-mayor and the councilman from his ward. Non-partisan, preferential voting was provided for, and likewise the recall, initiative and referendum. Under the non-partisan plan any number of candidates may run for primary nominations for, say, the office of mayor. The highest three will be the candidates at the election following the primaries. Similar elimination for other offices will be determined by the primary vote. The charter was adopted at the election on Nov. 3.

Seattle.—Seattle on June 30 defeated a proposed charter which was the first one emanating from so large a city to provide for a city manager. His salary was fixed in the proposal at $12,000, the same as Dayton's, and therefore relatively not so large. The city manager was to have been subject to removal by a two-thirds vote of the council and to recall by the people. The mayor was to be in charge of the police and to preside over the council. Preferential voting was to be established and primaries eliminated. That they might study the candidates and their relative fitness, sample ballots were to be mailed a week in advance of the election.

Boston.—Boston had a charter fight over the retention of the single council chamber elected at large or the substitution therefor of a larger council elected on a ward basis. This question was submitted on a referendum to the people at the election in November and defeated.

Chicago.—Chicago has now a permanent charter commission of 15 aldermen and 15 other citizens under the chairmanship of Henry D. Capitain. The general purpose of the commission will be to bring about a greater degree of local self-government, a rehabilitation of the municipal revenue laws and a consolidation of the taxing bodies within the city limits. It will also devise ways and means of bringing about necessary constitutional amendments.

New York State.—Buffalo adopted the commission form of government at the November election. This she was able to do under an enabling act passed by the legislature of 1913 (*A. Y. B.*, 1913, p. 204). The legislature of 1914 passed the optional cities law (see *Municipal Home Rule, supra;* and *A. Y. B.*, 1913, p. 204), which goes into effect in July, 1915. It gives all the cities of New York State save the largest three (New York, Buffalo and Rochester) an opportunity to choose any one of six forms of charter. To each of the six forms the following general provisions apply: The governing body is to be known as the council, elected for a term of four years, partially renewable biennially. In addition to other powers granted under the specific plans, the mayor is to have custody of the seal of the city and is required to exercise such other powers as are conferred by law upon the mayors of cities. Boards of education are not affected by the act, and as to election provisions, the general laws of the state apply. These require the holding of partisan primaries, with provision for independent nominations. The ballot is of the so-called "Massachusetts" type, with

party emblems opposite the names of candidates. There are no provisions in the law for direct legislation or for recall.

Under Plan A, known as the "limited-council plan," the governing body is composed of five members (or three in cities having less than 25,000 inhabitants, if voters so determine), including a mayor elected at large. The council is required to divide the administration of the city's affairs into departments and make rules and regulations concerning them, and each member of council is to be designated the head of one or more departments over which he has special oversight and direction. Plan B, known as the "limited-council with collective supervision plan," is, in general, the same as Plan A, but the individual members of the council do not serve as heads of departments, those positions being filled by appointment by the council. Plan C, "limited-council with appointive city manager," provides a governing body of five, including mayor, in third-class cities, or seven, including mayor, in second-class cities, all elected at large. The administrative and executive powers are vested in a city manager, appointed by the council, to hold office during their pleasure. The city manager is to be the administrative head of the city government.

Under Plan D, "separate executive and legislative departments," the governing body is five, not including mayor (or three in cities of less than 25,000 population, if the voters so decide), elected at large. The administration is under the control of the mayor. He exercises the executive and administrative powers; may veto an ordinance or resolution of council, which veto may be overridden by a three-fourths vote. His salary is three times that of a councilman. He appoints all officers of the city required by law or ordinance to be appointed.

Plan E, "legislative department consisting of nine councilmen," is the same as Plan D, except that the council consists of nine persons elected at large. Plan F, "legislative department consisting of councilmen elected by districts," is the same as Plan D, except that the council consists of as many members as there are wards in the city, and one councilman is to be elected from each ward.

Virginia.—Another state which has passed an optional charter bill for cities under 100,000 population is Virginia. Under an act of March 13, 1914, a city may choose to be governed under the "modified commission plan," the "city-manager plan," or general councilmanic plan. The act provides for the calling of special elections upon the petition of 25 per cent. of the qualified voters. If the special election fail, there can be no further vote on a change of form for two years.

GOVERNMENT BY CITY MANAGER AND COMMISSION

New Jersey.—At the 1914 session of the legislature, two important amendments to the commission-government law were passed, one of them making preferential voting compulsory in all cities operating under its provisions, and the other putting these cities in a separate classification. The latter was intended to give the cities a rather larger measure of self-government than they enjoy at present, but in accomplishing this end it took them from under the control of such laws as were applicable to cities of a special class and provided a general municipal law applicable to all cities to which these laws applied. This law was declared unconstitutional by the Supreme Court on May 22, on the ground that it was special legislation.

Pueblo.—On June 30 Pueblo voted down a proposition to abandon the commission form. The campaign grew out of an effort on the part of some of the discarded political forces, who started a petition to amend the charter in such a way as to bring back the old form of government. Under the constitutional amendment which gives Colorado cities the right to adopt the commission form of government, any one may start a petition calling for a special election to amend the charter, and it requires only ten per cent. of the last vote to bring about a special election. The vote showed that the people were satisfied with their pres-

ent commission form of government, as they voted four to one to sustain it; in fact, the petitioners did not succeed in having as many votes cast to change the form of government as they had names on their petition. In November, 1913, the people voted to reduce the number of city commissioners from five to three, and to raise municipal revenues thereafter under the single-tax system.

Commission Government.—The following is a list of the cities adopting the commission form since the list published in the YEAR BOOK for 1913 (p. 206):

	Population
Irvington, N. J	11,877
Orange, N. J	29,630
Phillipsburg, N. J	13,903
Buffalo. N. Y	423,715
Bloomington, Ill	25,768
Flora, Ill	3,500
Adrian, Mich	10,763
Big Rapids, Mich	4,519
Cadillac, Mich	8,375
Monroe, Mich	6,893
Marquette, Mich	11,503
Owosso, Mich	9,639
Saginaw, Mich	50,510
Antigo, Wis	7,196
Fond du Lac, Wis	18,797
Joplin, Mo	32,073
Kirksville, Mo	6,347
Monette, Mo	4,177
West Plains, Mo	2,914
Hillsboro, N. D	1,300
Fort Scott, Kan	12,000
Osawatomie, Kan	5,000
Hiawatha, Kan	2,974
McPherson, Kan	3,546
Paducah, Ky	22,760
Florence, Ala	6,689
LaFollette, Tenn	485
Lebanon, Tenn	3,659
Murfreesboro, Tenn	4,679
Greenwood, Miss	5,836
Lafayette, La	7,000
Weatherford, Okla	3,000
Coleman, Tex	3,046
Honey Grove, Tex	2,300
Luling, Tex	1,404
Mertens, Tex	350
Orange, Tex	7,500
Sweetwater, Tex	6,200
San Antonio, Tex	96,614
Florence, Ore	1,054

According to the report prepared by the Bureau of the Census (June, 1914), there were at the close of 1913 55 cities out of 199 in the United States having an estimated population of over 30,000 inhabitants which have adopted a commission form of government.

The City-Manager Plan.—There has been an interesting growth of the city-manager plan. In the last issue of the YEAR BOOK (p. 208) 12 cities were reported as having adopted the plan during the year. At the end of 1914 there were 45 city-manager cities, the list being as follows:

	Manager	Population
Norwood, Mass		8,014
Niagara Falls, N. Y.		30,445
Grove City, Pa	John S. Ekey	3,674
Titusville, Pa	Herbert A. Holstein	8,533
Frostburg, Md	George Stern	6,028
Bristol, Va		6,247
Charlottesville, Va.	A. V. Conway	6,765
Staunton, Va	S. D. Holsinger	10,604
Hickory, N. C		3,716
Morganton, N. C.	R. W. Pipkin	2,712
Sumter, S. C		8,109
Lakeland, Fla	Donald F. McLeod.	3,719
Largo, Fla		
Ashtabula, Ohio		18,266
Dayton, Ohio	Henry M. Waite	116,577
Sandusky, Ohio		19,999
Springfield, Ohio	Chas. E. Ashburner	49,821
Glencoe, Ill	H. H. Sherer	1,899
River Forest, Ill	Karl M. Mitchell	2,456
Winnetka, Ill	R. L. Fitzgerald	3,168
Big Rapids, Mich.	Claude E. Chappell	4,519
Cadillac, Mich	Ossian E. Carr	8,375
Jackson, Mich		31,433
Manistee, Mich	Carl E. Ruger	12,381
Morris, Minn	S. A. Siverts, Jr	1,685
Clarinda, Iowa	A. T. Wilson	3,832
Chariton, Iowa		3,794
Iowa Falls, Iowa	E. L. Marriage	2,797
Abilene, Kan	Kenyon Riddle	4,118
Mulberry, Kan	John Marion	1,325
Collinsville, Okla.		1,324
Amarillo, Tex	M. H. Hardin	9,957
Denton, Tex	M. L. Foreman	4,732
Taylor, Tex		5,314
Terrell, Tex		7,050
Montrose, Col	P. W. Pinkerton	3,252
Great Falls, Mont.		13,948
Phoenix, Ariz	W. A. Farish	11,134
Tuscon, Ariz		13,193
LaGrande, Ore	F. J. Lefsky	4,843
Alhambra, Cal		5,021
Bakersfield, Cal		12,727
Inglewood, Cal		1,536
Port Arthur, Ont.		11,220
Maisonneuve, P. Q.		18,684

A report on the city-manager and commission plans of city government, prepared by a special committee, was published by the National Municipal League in June.

EFFICIENCY AND RESEARCH

New York.—The New York Bureau of Municipal Research has worked with the comptroller in revising and installing accounting systems in the finance and other departments, and coöperated with the Curran aldermanic committee in the police investigation of 1913 (*A. Y. B.*, 1913, p. 225). It has also prepared a study of the standardization of salaries and grades

of city employees; a water budget for New York (saving by this $400,000); an analysis of the health-department budget for 1915; an analysis of the increase of taxes, 1903-13; an investigation of the procedure of the health department in the prevention and control of typhoid fever; and a study of out-patient tuberculosis service at Gouverneur Hospital. The division of food inspection of the health department was investigated, as was the traffic in "rot and spot" eggs in New York City and Jersey City. Studies of visiting nurse service and ambulance service were made, and also an analysis of the reports of charitable institutions in New York City and state, and a study of the inspection service of city departments, in coöperation with the office of the commissioner of accounts. A general standardization of departmental reports was begun.

Philadelphia.—The Philadelphia Bureau of Municipal Research has coöperated with the controller in preparing a manual of accounts for all city and county departments, and coöperated with the water bureau in installing a system of accounts as prescribed by the controller. At the request of the Department of Public Safety it prepared a descriptive statement of the horse-shoeing situation and outlined a system for establishing city farriers. An accounting system was completely installed in the Bureau of City Property. Material was collected regarding the distribution of the offices in the City Hall and the utilization of space. A complete descriptive chart of the city telephone lines and equipment was prepared, and two sections of the descriptive report on the Philadelphia General Hospital have been submitted, as well as a critical and constructive report on the existing staff.

Baltimore.—The Baltimore bureau is engaged upon a study of the distribution of the police force and an investigation of the Health Department, and also has under way a study of the city's sinking funds.

Chicago.—Aside from its regular activities, as recorded in previous issues of the YEAR BOOK, the efficiency division of the Civil Service Commission was engaged during 1914 in six large investigations: (1) a study of the personnel, organization and general police conditions existing in the city, made at the order of the City Council; (2) an investigation of the efficiency of work and methods used by the Bureau of Streets in the cleaning of streets and collection of refuse; (3) in the installation of a modern accounting system, since the adoption of the segregated budget by the Board of Education, to provide for control of expenditures as contemplated under the budgetary classification proposed by the division; (4) the devising and installing of a complete cost-record system for the different divisions of the Bureau of Engineering; (5) an investigation, at the request of the Commissioner of Health, of the organization, methods, systems and processes in the Department of Health; and (6) a study of the organization of the administrative offices of the Board of Education and constructive recommendations of changes in organization and procedure. The support given this division by the citizen body and the administrative officials and employees has led to the conclusion that the need for permanent efficiency work in public service is recognized and it is believed by many that the time is now ripe for the creation of a permanent department of Apportionment and Efficiency Control; an ordinance for that purpose has been prepared by the efficiency engineer in charge, at the request of a council committee.

Milwaukee.—The Milwaukee bureau has undertaken a survey of the refuse-disposal system of Milwaukee with the end in view of cutting down the cost to the city and improving the system. So far it has spent its time in finding out what the present conditions are. There is also a private bureau, the purpose of which is "efficiency in government through coöperation with government." By this is meant active participation in the affairs of government, with the consent of those in authority, in the endeavor to solve community problems with greater effectiveness. It has conducted detailed studies of the several departments along the same general lines as are mentioned in the reference to the Philadelphia bureau (*supra*).

The official Milwaukee Bureau of

Municipal Research has published a complete report of what has been undertaken and accomplished in standardizing salaries and grades of city employees. It contains numerous organization charts relating to the several city departments. The plan of standardization follows in general the lines laid down for similar work by New York and Chicago.

St. Joseph.—The Commerce Club of St. Joseph, Mo., has elected a civic commissioner, the chief of whose duties is efficiency work. Already he has discovered leaks, the stopping of which has saved the city $25,000.

Dayton.—The Dayton bureau has been engaged primarily in carrying out some of the constructive phases of its earlier recommendations, including the completion of the accounting system, which it is believed will be equal to that of any city in the country and vastly in advance of most of them. Improvement has been made in the budget programme; the more detailed features of the purchasing system have been installed; supplies have been standardized; and work on the standardization of salaries and grades begun. A new system of water works accounting, including adequate control of metered services, is being worked out. Of a more general nature is the preparation of a building code with the coöperation of outside experts. The investigation of new sources of city revenues, a study of over-age and non-promotion in the local schools, and the standardization of city reports have been undertaken by the bureau.

Cincinnati.—A Civic and Industrial Department of the Cincinnati Chamber of Commerce was organized on Jan. 1. One of the principal things undertaken by this department is an industrial survey which is now in progress, consisting of a compilation of facts having a bearing on the industrial situation in Cincinnati and an analysis of these facts in an effort to suggest constructive acts looking toward industrial betterment. As a right sort of working population is one of the principal factors in the industrial situation, a distinct section of this survey is an inquiry which will endeavor to give the public schools information upon which they may better their industrial and vocational instruction.

Toronto.—The Toronto bureau began actual work on March 1, following the work of the civic survey committee in reporting on the management of five large city departments. The publicity of the Bureau has taken the form of a series of bulletins. It has established a "help-your-city" suggestion department, and is conducting a recreation survey of the city, and carrying on studies of housing, rapid transit, commutation service, and cost of living. In addition, a comparative study is being made of assessments, tax rates, per capita debts, and other similar statistics for Canadian and American cities. Plans have been completed and forms drawn up for a vocational survey of the city, in which it will have the coöperation of the labor organizations and the technical schools of the city.

Collegiate Municipal Reference Bureaus.—The Harvard Bureau for Research in Municipal Government is in the third year of its operation (*A. Y. B.*, 1912, p. 199). Its primary purpose is to provide a workshop in which Harvard undergraduates may study municipal government from first-hand sources and materials. Students in the courses on municipal government are given opportunities for practical work in detailed questions of municipal administration. During 1913-14 a great deal of work was done in gathering data for the mayor's charter commission in Cambridge. Two substantial volumes have been prepared. The first, a work on municipal charters by Nathan Matthews, former mayor of Boston, contains a practical discussion of charter-making methods, with texts of charters suitable for a medium-sized city. The second publication is a bibliography of municipal government, which will appear, it is expected, early in 1915. This compilation will cover the whole field of municipal administration, but no attempt is being made, of course, to include all the available materials. Nothing that has been in print longer than ten or a dozen years will be included.

Municipal reference bureaus are now established in the following universities and colleges, the name of the

director of the bureau being given in each case:

California, Berkeley. Joseph H. Quire.
Iowa, Iowa City. O. E. Klingaman.
Kansas, Lawrence. C. H. Talbot.
Minnesota, Minneapolis. G. A. Gesell.
North Dakota, Grand Forks. Sveinbjorn Johnson.
Texas, Austin. Herman G. James.
Washington, Seattle. Herman A. Brauer.
Wisconsin, Madison. Ford H. MacGregor.
Harvard, Cambridge, Mass. Alice M. Holden (secretary).
Whitman College, Walla Walla, Wash. John H. Russell.

Surveys.—The New York Bureau of Municipal Research has conducted surveys outside of New York during 1914 in the following municipalities and institutions: Akron, O., Allegheny County, Pa., Bloomfield, N. J., Brandon, Man., Bridgeport, Conn., Charleston, S. C., Dayton, O., Denver, Col., Essex County, N. J., Grand Rapids, Mich., Greenwich, Conn., Hempstead, Long Island, Hoboken, N. J., Jersey City, Letchworth Village, Thiells, N. Y., Los Angeles, Merion, Pa., Milwaukee, Minneapolis, Multnomah County, Ore., New Brunswick, N. J., New Rochelle, N. Y., Pine Bluff, Ark., Pittsburgh, Portland, Ore., Reading, Pa., Springfield, Mass., Syracuse, N. Y., Toronto, Ont., Waterbury, Conn., and Yonkers, N. Y. For the Federal Government the Bureau has prepared a survey of the office of Indian Affairs in the shape of reports on accounting and administration, and for the Collector of the Port of New York an investigation of the commissary at Ellis Island. It has also made surveys for the Boy Scouts of America and the Child Welfare Societies of Philadelphia, giving special attention to the questions of organization.

The Department of Surveys and Exhibits of the Russell Sage Foundation has conducted surveys in the following cities: Brooklyn, Newburgh, N. Y., Ithaca, N. Y., Scranton, Pa., Atlanta, Topeka, Newark, O., and Springfield, Ill.

MUNICIPAL ORGANIZATIONS

National Municipal League.—The twentieth annual meeting of the National Municipal League and the twenty-second National Conference for Good City Government were held at Baltimore, Nov. 18 to 20. The principal subject for discussion was the report on the municipal programme. This report recommended the city-manager plan, adequate provisions for establishing efficiency, a council elected at large in small communities and from wieldy districts in larger communities. Among the other subjects discussed were the relation of the city to the cost of living, woman's work for cities, the children of the city, efficiency in city government, municipal reference libraries, the liquor problem, the application of the merit system to higher municipal offices, the initiative, referendum and recall, municipal accounting and budgets, civic education, the social side of city life, charter development, and modern municipal tendencies. William Dudley Foulke, Richmond, Ind., was reëlected president; George Burnham, Jr., Philadelphia, treasurer, and Clinton Rogers Woodruff, secretary. The following were elected vice-presidents: Miss Jane Addams, Chicago; John Stewart Bryan, Richmond, Va.; Camillus G. Kidder, Orange, N. J.; George McAneny, New York; J. Horace McFarland, Harrisburg; Charles Richardson, Philadelphia; Chester H. Rowell, Fresno, Cal.; Dudley Tibbits, Troy, N. Y.; A. Lawrence Lowell, Harvard University; Frank J. Goodnow, Baltimore.

Four volumes have been added to the National Municipal League Series (D. Appleton & Co.), namely, *Woman's Work for Cities*, by Mrs. Charles A. Beard; *The Commission-Manager Plan*, by H. A. Toulmin, Jr.; *Satellite Cities*, by Graham R. Taylor; and *The Relation of the City to the Cost of Living*, by Clyde L. King. A committee under the chairmanship of Dr. King is investigating the relatin of the city to its food supply, and a number of other committees have been actively engaged during the year in studying important phases of the municipal problem. The reports of certain committees were features

of the Baltimore meeting. An important report on the city-manager plan was issued by the League during the year.

The Civic Secretaries Committee of the National Municipal League at the Toronto meeting (1913) elected the following officers: President, Addison L. Winship, Boston; secretary, Hornell Hart, Milwaukee; treasurer, Miss H. Marie Dermitt, Pittsburgh; John Ihlder, New York, and Stiles P. Jones, Minneapolis, were elected additional members of the executive committee.

The American Civic Association, which was formed by the amalgamation of the American Park and Outdoor Art Association and the American League of Civic Improvement, celebrated its tenth anniversary at Washington, Dec. 2 and 3. The officers of the Association are: J. Horace McFarland, Harrisburg, president; Richard B. Watrous, Union Trust Building, Washington, secretary; William B. Howland, *The Independent*, New York, treasurer. The principal activities of the Association during the year dealt with city planning and other phases of city improvement.

The League of American Municipalities held its annual meeting in Milwaukee in October. An important feature of the meeting was the report of the committee urging municipal home rule. Robert E. Lee of Baltimore was reëlected secretary of the League.

The American Society of Municipal Improvements met in Boston Oct. 5-8, and considered a long series of questions dealing with construction work. William A. Howell, Newark, N. J., was elected president of the Society and Charles C. Brown, Indianapolis, secretary.

National Civic Federation Investigation.—Under the auspices of the Industrial Economics Department of the National Civic Federation a survey of social and industrial conditions in the United States is being conducted. A special committee is studying how far the efforts of civic reform movements for cleaner and more efficient municipal government have yielded substantial results and how far the public demand for a better administration of affairs has been developed. The committee is also investigating the extension of the functions performed by the city and the question of whether such extension is in the interest of social welfare.

Information Department and Legislative Bureau of the Socialist Party.—So far the work of this bureau, the organization of which was recorded in the last issue of the YEAR BOOK (p. 213), has been along the following lines: (1)the handling of inquiries received from the general membership and organizations of the Socialist party and others on the general problems involved in socialism and social reconstruction; (2) the collection and classification in a subject file of special material covering the subjects handled, now covering 1,150 subjects; (3) the assembling of a specialized library bearing upon the specific problems of the movement; (4) legal aid to the local organizations and members of the party through gratuitous services of some 300 socialist attorneys; (5) assistance on legislative and especially municipal problems, including the analysis, criticism and drafting of city charters and franchises, regulation of municipal utilities, labor legislation, municipal ownership and allied subjects; (6) technical aid on engineering problems supplied through the gratuitous services of experts in the various fields who act as advisers to the party in their respective lines, and (7) the publication of leaflets, pamphlets and bulletins setting forth the constructive measures and work of the Socialist party.

The services are rendered without charge, and the department is supported out of the regular funds of the party. In the handling of various problems of city administration, the bureau has had the services of a number of engineers and experts who have given their services without charge. With their help the bureau has been able to assist elected officials in technical matters such as budget-making and accounting, estimated cost of electric light construction, efficiency of certain gas units. The number of inquiries on municipal problems for the year was nearly 400. (See also XV, *Socialism.*)

MUNICIPAL ACCOUNTING

Cleveland.—The auditor of Cleveland has introduced a number of changes, including a general ledger report. In the opinion of the Bureau of Municipal Research, the report overdoes the matter and includes too many balance sheets. A separate balance sheet is published for each of the city departments. In many instances they are of practically no value, in the opinion of the Bureau. The auditor has included among his fixed assets such items as tools, motor cars and motor cycles, live stock, implements, vehicles, harness, etc. All cash is reported as a current asset. One large cash item was marked as a bond fund. This would indicate that it was to be issued for permanent assets.

The state of Ohio is soon to be placed on a budget basis. This was authorized by the last legislature and W. O. Heffernan, with the coöperation of the Cleveland Bureau of Municipal Research, has devised a complete state budget system, including a standardized system of appropriation accounting.

Los Angeles.—Following a survey of the business methods of Los Angeles, the council provided in the 1914 budget for a city bureau of efficiency and economy. This bureau will be conducted similarly to the Milwaukee bureau, devoting particular attention to accounting and cost matters. Dr. Jesse D. Burks, the director of the Philadelphia Bureau, was put in charge as a result of a competitive examination.

Springfield, Mass.—This city issues annually a volume of 1,200 pages called the *Massachusetts Register*, containing all the annual reports of the departments of the city. About one thousand copies are printed at a cost of $2,500. In the spring of 1914 the local Bureau of Municipal Research made a preliminary report to the city printing committee showing how more than 50 per cent. of the pages could be advantageously omitted and also how a great deal of the material could be improved both in respect to matter and presentation. Owing to the advanced stage of the *Register* it was able to enforce the adoption of only four of the recommendations. These four, however, will cut out 115 pages of the document for 1914.

Pittsburgh.—The New York Bureau of Municipal Research assisted the city council during December, 1913, and January, 1914, in making the 1914 budget. The council had previously had the Bureau make a survey of the city departments. Arrangements have been completed to install a complete new accounting system, standardize salaries and wages, place the police and fire pension funds on an actuarial basis, reorganize the police department and put other recommendations into effect. The board of commissioners of Allegheny County are now having a general survey of all the county offices and departments.

Accounting of Municipal Utilities.—In its sixth annual report the Wisconsin Railroad Commission has this to say of utilities accounting:

> One problem that has been very hard to handle is the adjustment of municipal reports. It is the purpose of the uniform classification to make utilities of the same class, regardless of form of ownership, comparable with one another. In bringing the accounting procedure of municipal utilities into line with these uniform rules many more obstacles and difficulties have been met with than in the case of the private plants. The Commission has taken the attitude that a municipal plant should report earnings for service furnished by one department to another in the same way as though the utility stood apart from the general city administration. . . . The utility has furnished the service and has earned a return for it, regardless whether or not it actually has any more cash on hand to show for it. Unless such interdepartmental transactions are reported, no fair comparisons can be made between privately and municipally owned plants.
>
> The fault does not necessarily lie with the administration of the municipal utilities themselves, but should rather be attributed to the weaknesses of the entire accounting method which prevails in many of our cities. It is a difficult task to accomplish a permanent advancement or improvement in the accounting procedure of a municipal utility when the entire municipal system, coupled with that utility's administration, may be unscientific and inadequate. Just as soon as any attempt is made to regulate the utility end of it the neces-

sity of reforming the entire municipal accounting procedure becomes obvious. If it is the city's practice to cover all transactions with the general fund and to make little or no attempt to show operations of departments as separate activities, it is difficult to require that the procedure affecting the utility be revised without adjusting the other operations so that they are harmonious throughout. The Commission has pointed out to municipal plants the importance of segregating their transactions as far as possible from general city business.

Uniform Accounting.—State Auditor Donahey of Ohio has addressed to Director Harris of the Census Bureau an appeal for the establishment by Congress of a uniform system of accounting by all the states. He calls attention to the fact that, although a large number of states have established bureaus which require uniform accounting by certain classes of cities, there has developed a marked variation between the several state systems. Herbert R. Sands, secretary of the Metz Fund, writing in the *National Municipal Review*, points out that, desirable as a national law might be in requiring the same system of municipal accounting throughout the country, one encounters immediately the very practical objection of its unconstitutionality. The Census Bureau and the National Municipal League have labored for 12 years to attain this end by the process of education and suggestion. In fact, the establishment of the state bureaus throughout the country is a direct result of the educational campaign and field work done by the Census Bureau. In view of the fact, therefore, that so much of real accomplishment has been attained by these methods, there is reason to hope that the ultimate goal may be reached by a continuation thereof without the aid of a national law.

Mr. Donahey's letter to Director Harris further stated "that the real test of efficiency lies in comparisons of experience between all governments of the same class rather than in comparisons of the experience of a single government for one year with that of other years." With this statement Mr. Sands takes issue. The fact has long been recognized, he says, that much of the organization, methods, procedures, etc., were wrong in all of our cities and that most of the costs for the several departments, functions and activities thereof were excessive. Although a large number of cities are gradually improving upon this condition, even yet they are a considerable distance removed from what might be called a standard. It, therefore, logically follows that any conclusions based upon comparisons of one city with another can have but a limited value, at least, unless there is a full understanding of the many local conditions in each case.

Kentucky.—In his annual message for 1914 Governor McCreary of Kentucky recommended a law requiring that a uniform system of accounting should be enforced in all public offices charged with the collection and disbursement of public money. He said:

> Public officers who receive public money and distribute it should have a system of bookkeeping in every respect up to date, subject to inspection by all who are concerned or who have authority to inspect. We should be able to tell, on request, any day, without special investigation, the financial condition of the state of Kentucky and of every county of it, and the exact cost of operating every department in the state; and we should also be in a position to know, on request, the financial condition of every officer charged with the collection and distribution of money and all the state institutions.

Census Municipal Statistics.—The Bureau of the Census has issued an announcement to the effect that it now contemplates the continuance of the annual publication of its official "Statistics of Cities having over 30,000 Inhabitants," and that there will be a return to the formal fiscal year ending June 30, instead of the period covered by the later reports. This change is regretted by those who use the statistics most because it delays the appearance of the statistics for the majority of the larger cities six months and thus disregards the popular wish with regard to the subject which led to the abandonment of the practice of reporting which is now to be resumed.

CITY PLANNING

City Planning Commissions.—The rapid development of the city-planning idea in the United States is demonstrated by the following list of cities which have actually established city-planning commissions. Many of these commissions already have the study of the future development of the city well in hand. Flavel Shurtleff, secretary of the National City Planning Conference, has prepared the following list as being officially in operation:

City	Population, 1910	Date Established
Hartford, Conn	98,915	1907
Milwaukee, Wis	373,857	....
Chicago, Ill	2,185,283	1909
Baltimore, Md	558,485	1910
Detroit, Mich	465,766	1910
Jersey City, N. J	267,779	1911
Newark, N. J	347,469	1911
St. Louis, Mo	687,029	1911
Cleveland, O	560,663	1911
Pittsburgh, Pa	553,905	1911
Philadelphia, Pa	1,549,008	1911
Salem, Mass	43,797	1911
Lincoln, Nebr	43,973	1911
Trenton, N. J	96,815	1912
Cincinnati, O	363,591	1913
Scranton, Pa	129,867	1913
Schenectady, N. Y	72,826	1913
Paducah, Ky	22,760	1913
Pittsfield, Mass	32,121	1913
Fitchburg, Mass	37,826	1913
Waltham, Mass	27,834	1913
Lawrence, Mass	85,092	1913
Lowell, Mass	106,294	1913
Springfield, Mass	88,926	1913
Malden, Mass	44,404	1913
Northampton, Mass	19,421	1913
Holyoke, Mass	57,730	1913
Somerville, Mass	77,236	1914
Boston, Mass	670,585	1914
Bridgeport, Conn	102,054	1913
New Haven, Conn	133,605	1913
Providence, R. I	224,326	1914
Melrose, Mass	15,715	1914
Chicopee, Mass	25,401	1914
San Francisco, Cal	416,912	1914

Conferences and Exhibitions.—The sixth National Conference on City Planning was held in Toronto, May 25-27, being formally opened by H. R. H. the Duke of Connaught, Governor-General of Canada; Frederick Law Olmsted was reëlected chairman and Flavel Shurtleff, Boston, secretary. A Town Planning Conference was held in Boston, Nov. 18-19, 1913, called by Governor Eugene N. Foss, at the suggestion of the Massachusetts Homestead Commission; another conference is shortly to be held under the same auspices. A city planning exhibition prepared for the city of New York and the New York Merchants Association by the American City Bureau was shown in New York, Los Angeles, Jersey City and other cities. The Alberta Town Planning Association held an exhibition and convention on city planning, June 16-18.

Excess Condemnation.—The following is a list of the state statutes that have been passed on this subject: Massachusetts, 1904 (ch. 443); Ohio, 1904 (sec. 1536, par. 103); Virginia, March 14, 1906; Connecticut, 1907, and 1913; Pennsylvania, 1907; Maryland, March 30, 1908. The following is a list of the constitutional amendments that have been adopted: Massachusetts (1911), Wisconsin (1912), Ohio (1912), New York (1913) and California (1914). A volume on *Excess Condemnation* in the National Municipal League Series is in course of preparation.

Art Commissions.—There are now 14 art juries and commissions. Among these the Art Commission of New York City is conspicuous for the extent of its jurisdiction, powers and results accomplished. This Commission is composed of ten members: four *ex-officio* members, the mayor, the president of the Metropolitan Museum of Art, the president of the New York Public Library and the president of the Brooklyn Institute of Arts and Sciences; one painter, one sculptor and one architect, all residents of the city; and three other residents of the city, none of whom shall be a painter, sculptor or architect or member of any other profession in fine arts. All of the six last mentioned are appointed by the mayor from a list of not less than three times the number to be appointed proposed by the Fine Arts Federation of New York. Its jurisdiction extends to the following matters: all works of art to be acquired by the city by purchase, gift or otherwise; the removal, relocation or alteration of any work of art; all designs for public structures to be erected upon land belonging to the city and all private structures built wholly or in part upon public land; the selec-

tion of art productions costing not to exceed $50,000 in any one year when such appropriation has been made by the Board of Estimate and Apportionment; and the lines, grades and plotting of public ways and grounds. The only exception to this is that when a structure is to be erected costing $250,000 or less, the Commission does not act if requested not to do so by the Mayor or the Board of Aldermen. All its decisions are final. Its work is constantly growing. For the first four years of its existence it passed upon an average of six submissions yearly. Recently it has passed upon about 200 submissions.

Chicago.—The Chicago City Club has announced a competition for plans for a neighborhood center. The programme has been worked out by a joint committee representing the Club and the Illinois chapter of the American Institute of Architects. There is to be a preliminary competition open to all and a final open to not less than eight or more than 16 selected by the jury in the preliminary. The plans are to be shown as the special features of a neighborhood center exhibition and series of conferences in February, 1915. The sum of $600 has been offered by one of the past presidents of the club for the authors of the best plans. The competition implies, the Club announces,

> that a city should be, more than our cities now are, a federation of neighborhoods, and that each neighborhood should have not merely a "social" or "civic" center for recreation and discussion, but a well-designed grouping of the many important institutions of different sorts belonging to or needed by that neighborhood. Not only would a desirable architectural and landscape picture be secured in this way, but neighborhood pride and action concerning neighborhood matters would be encouraged. We expect that the competition will bring forth valuable ideas for the improvement of the physical city and the people.

George E. Hooker, civic secretary of the City Club, has prepared and the club has published a careful study of "Through Routes for Chicago's Steam Railroads." It is Mr. Hooker's contention that the steam railroads of Chicago, because of their high speed, their wide distribution over city and suburbs, their segregation from other lines of traffic (above the streets and on their own rights of way) should serve and be widely used as the main trunk system for rapid local travel for city and suburbs. Instead of these advantages being now realized, all Chicago steam railroads end at arbitrary and disconnected points downtown. One result is that enormous, costly, inefficient and inconveniently located passenger terminal stations are thus made necessary. Another is that, aside from disadvantages also to long-distance passenger service and serious injuries to the streets crossed by terminal stations and their wide approaches. Chicago's steam lines serve but meagerly the local passenger needs of the city and its environs. Mr. Hooker holds that terminal operation of passenger trains, particularly for local travel, should be abandoned for a system of through routes extending from the suburban communities on the one side of the city, through the central part of the city, to similar communities on the other side of the city. A specific suggestion by Bion J. Arnold for such rearrangement of routes is also presented, and the actual experience of other cities in operating through routes on their steam lines is cited in detail and illustrated by colored maps and photographs.

Cleveland.—Cleveland is developing a group plan for public buildings in which the county building ($3,500,000) and the Federal Building ($3,000,000) are completed and occupied. The City Hall ($2,600,000) is under construction and will be occupied probably during the latter part of 1915. Bonds have been authorized by the electors for a Library building ($2,000,000), and the land for the building is the property of the city. The railroads which are to occupy the Union Station have agreed upon the price to be paid to the city by them for the land they will occupy, and the type of building has been agreed upon. Certain engineering features remain to be disposed of before the work of construction of the station commences. The money received from the sale of land for the station will be applied to the purchase of land in

a mall connecting all buildings. The price to be paid by the railways is $1,400,000. The railway station, including the cost of raising tracks, etc., will cost from $8,000,000 to $12,000,000. The five buildings mentioned are the pivotal points of the group plan and their erection is now assured. The purchase of the land for the mall is assured. The buildings to line the sides of the mall will come in time, partly through public and partly through private enterprise.

New York.—The conference of mayors of New York cities is making a comprehensive study of city planning. As a preliminary, a questionnaire with 214 heads has been issued to gather material for the advisory committee, which consists of Arnold W. Brunner, Nelson P. Lewis, Daniel L. Turner and Charles Downing Lay of New York and Edward B. Green of Buffalo.

In New York every city and incorporated village is authorized under an act of 1913 to create a planning commission and to provide money for its support. Such commissions shall be created for villages by ordinance of the trustees and for cities by the council, except in New York City where it is created by the Board of Estimate and Apportionment. The law does not contemplate interference with any art commission or park commission in its powers over the acceptance for the public of any work of art. The commission may cause maps to be made showing all data for city planning and the council may require all plants to conform to the plan before being approved for record.

One of the most important city planning activities of the year is the action of the Board of Estimate and Apportionment of New York City in creating as one of its most important committees a committee on city plan, consisting of President George McAneny of the Board of Aldermen as chairman and the five borough presidents. An adequate appropriation has been voted to this committee and offices provided for it in the new Municipal Building. Three advisory commissions of citizens, ranging from 11 to 21 members each, have been appointed to advise the committee on specific matters which come before it. The staff of this committee has been requested by the Board of Estimate to proceed immediately in the collecting of all fundamental data essential to adequate city planning. An important feature of the work of the committee, which it inherited from the heights of buildings commission of 1913 (*A. Y. B.*, 1913, p. 218), is the problem of districting, providing for different height, area and character of occupancy restrictions in different parts of the city. New York is now recognized as a leader in city planning in creating the machinery for making it an integral part of the creative and administrative work of the city.

Under an act of 1913, cities of the second class in New York state are authorized to create districts, and an amendment to the charter of New York City was passed the same year. Minnesota's legislature also in 1913 authorized cities of 50,000 or more to establish districts. On May 22 the New York City Club filed with the Board of Estimate a letter urging the adoption of the resolution then pending, providing for the appointment of a commission to carry out the purposes of the charter amendment which authorized the Board of Estimate to divide the city into districts and to regulate the height of buildings, the areas of courts and open spaces, the location of trades and industries, and the erection of buildings designed for specific uses. After public hearings the Board unanimously adopted the resolution and a commission has been appointed and is now at work.

The question of districting was considered at length at the Toronto session of the City Planning Conference and by the National Housing Association at its meetings.

Salem, Mass.—The rebuilding commission of Salem has issued rules for the rebuilding of the burned district and prepared a list of streets which will be required to have their lines changed. The regulations are voluminous and go into detail as to just what sort of construction may be employed. The commission intends to make the burned district absolutely fireproof, refusing the construction of anything but fireproof structures in the territory. The construction with-

in this district must be either of what is technically known as first-class or of second-class. In some instances wooden floors and partitions will be permitted, but other parts of structures must be of incombustible materials. Rules are also laid down regulating the installation of heating apparatus to safeguard against fire. No billboards will be permitted within the district. Certain streets are to be widened.

Reports.—City-plan reports have been published recently for Portland, Ore., Houston, Tex., Dover, N. J., Raleigh, N. C., Newport, R. I., Erie, Pa., Newark, N. J., Alton, Ill., and Walpole, Mass. In addition, partial reports, that is, reports on special phases or aspects of a city plan, have been published for New Haven and New London, Conn., St. Louis, Council Bluffs, Ia., and Jersey City. (See also XXX, *Architecture.*)

Minnesota Model Village.—In an effort to interest some of the villages and cities of Minnesota in the League of Minnesota Municipalities and to present to the state the constructive purposes of this organization, the executive committee of the League conducted a survey of one of the smaller Minnesota communities. Herman, a village of about 800 population, was selected because it appeared to be fairly representative of the smaller towns that are developing without definite plans for future growth. The survey touched upon all of the relations of the municipal government to the community.

Canada.—Town planning acts have been passed for New Brunswick, Saskatchewan, Alberta and Manitoba. A committee appointed by the Canadian Conservation Commission prepared a town planning act to be suggested to the Provincial governments as a basis for their enactments. It was presented in a preliminary form to the conference on city planning held in Toronto in May, but is being withheld for further consideration before presentation to the Provinces. Col. Jeffrey H. Burland of Montreal is chairman of the committee.

England.—Experts in town planning and civic design have formed a town-planning institute. Municipal representatives, architects, and surveyors are included. The objects are "to advance the study of town planning and civic design, to promote the artistic and scientific development of towns and cities, and to secure the association of those engaged or interested in the practice of town planning." Within the last four years 200 local authorities have moved definitely in some way in the matter of town planning. Fifty of these, representing a population of over five million, not including London, have so far applied to the Local Government Board for permission to prepare 66 schemes. Two of the schemes have been approved; three are before the board for final approval; and 47 have been authorized to be prepared. The rest of the 200 local authorities are in the preliminary stages of town planning. The president of the Local Government Board has expressed the belief that compulsory town planning, in view of the conditions at present, is neither practicable nor desirable, but that it would be wise for the Board to improve and simplify the regulations.

An International Garden Cities and Town Planning Association has been organized in London. Its secretary is Ewart G. Culpin, 3 Gray's Inn Place, Gray's Inn, London, W. C.

HOUSING

Minimum Requirements in Housing.—The housing problem as understood in America is the problem of securing in all dwellings sufficient light, adequate ventilation, good sanitation, protection against fire, decent privacy, and freedom from overcrowding. The complete solution of the problem includes the possibility of providing these things in dwellings arranged for one or two families at a price which will bring them within the reach of the laborer who is earning two dollars a day.

Within the last five years the definition of these minimum requirements has become clear in the minds of those interested in improved housing. John Nolen of Cambridge, Mass., thus sums up the requirements:

To ensure sufficient lighting every living room must have a window opening upon a street or yard, or upon a court not less than ten feet wide. According to the latest housing law (the Massachusetts City Tenement House Act) the height of a dwelling cannot exceed one story for each clear ten feet of the width of the street upon which the dwelling fronts. The back yard must be at least 15 feet in depth for a three-story building. Back yards usually abut each other, so a three-story dwelling, for example, will have at least 30 feet of open space at both front and rear. If the building is rightly placed the rooms even on the ground floor will always be fairly well lighted. If the height of the building is increased the depth of the yard must also be increased so as to preserve the proper relations between height and yard space.

To secure adequate ventilation not only should every room be lighted from the street or yard or a large court, but the area of the windows between stop beads should be not less than one-seventh of the floor area, and the sashes should be made to open full width.

Good sanitation means that the occupancy of cellars for living purposes should be forbidden, and that basements should not be so occupied unless they meet the requirements for lighting and ventilation and are made damp-proof; that every apartment should have its own toilet, or if there are apartments of one and two rooms that there should be one water-closet for every two apartments, and all properly constructed and lighted; that every apartment should have a sink, and that both sink and closet should be supplied with plenty of running water.

Protection against fire demands two entirely separate means of egress from every apartment, one of which must be fireproof. To secure a measure of privacy there should be an entrance to every bedroom and at least to one toilet without passing through another bedroom. To prevent overcrowding not less than 400 cu. ft. (500 is better) of air space in bedrooms should be required for each adult, and no family should be allowed to take lodgers or boarders except upon the written permission of the board of health.

The above requirements, amplified of course, are quite generally coming to be recognized, according to Dr. Nolen, as the standard minima for new buildings. It is also desired to make them so far as possible the minimum requirements for the improvement of old buildings, but here there are great difficulties in the way. In the older cities lot and block overcrowding are often serious, there are thousands of dark rooms and halls, great numbers of cellars and basements utterly unfit for habitation are still occupied, there is a vast amount of defective plumbing and general dilapidation, and rarely does a board of health have funds enough to supervise adequately the dwellings which ought to be constantly visited. But public sentiment respecting these matters is improving. Here and there all over the country there is progress; buildings unfit for habitation are being condemned, and higher standards are being applied to old dwellings.

Boston.—A bill is before the legislature of Massachusetts forbidding absolutely the occupancy of cellars for living purposes in the city of Boston, and making the requirements for basement occupancy the same for old buildings as for new. This bill is supported by the city government.

New York.—The New York City Commission on Congestion of Population made a report to the Mayor and the Board of Aldermen in March, 1911, and the life of the commission then expired (*A. Y. B.*, 1911, 244-8). The New York Congestion Committee (Dr. Benjamin C. Marsh, secretary, 320 Broadway) has taken up several of the recommendations of the Commission, and has tried to secure the desired legislation. Among these measures are: (1) Limitation on size of buildings and the establishing of zones or districts, with different regulations, as to heights and size of buildings in New York City, a matter which the city administration has now taken up. (2) Partial untaxing of buildings: the Committee is now trying to secure almost complete untaxing of buildings, reducing the tax rate on buildings to one per cent. of that on land; the reason for leaving the slight tax on buildings is the provision limiting the borrowing capacity of the city to ten per cent. of the assessed value of real estate "subject to taxation;" total exemption of buildings from taxation would invalidate about $290,000,000 of the city debt. (3) Mothers' pensions: the Commission recommends public assistance for widows, which has been fought by private charities successfully. (4) Va-

cating of dark rooms; this has been defeated annually.

Philadelphia. — The Pennsylvania Supreme Court has rendered a decision which modifies the operation of a law designed to improve Philadelphia's housing conditions, passed in 1913 (*A. Y. B.*, 1913, p. 219), which discontinued the three divisions of drainage, nuisance and tenement-house inspection in the Bureau of Health and established in place of them one division, the Division of Housing and Sanitation. This law was promoted by the Philadelphia Housing Commission and had the approval of the city administration. It did not have the approval of the city councils, however, and they refused to make any appropriation for the new division while continuing the appropriations for the three old divisions. The question was taken into the courts and appealed to the Supreme Court, which decided that the law was defective in several particulars and that in any event the initiative of putting it into effect rested with the councils, not with the administration. Therefore, as the councils had appropriated money for the old divisions and none for the new, the old divisions were in existence and the new one was not.

Another court decision in Pennsylvania has caused concern. Under the act of 1913 (*A. Y. B.*, 1913, p. 216) Chester adopted a city-planning commission. Two builders in Chester applied to the city building inspector for a permit to erect 14 houses. They were refused on the ground that the proposed layout was not in accordance with the building law. The case was taken into court and Judge Broomall of Delaware County decided that the city-planning commission has no jurisdiction to approve or disapprove of such operations and no power or authority in connection therewith, and that the action of the commission disapproving of the said operation was of no effect. The court of Blair County have followed this decision.

Cleveland.—Cleveland's authorities have ordered about 300 houses razed. Cleveland is not content simply to pull down old dwellings; it purposes to find out where their inhabitants go —if to better quarters, if they pay more rent, if their standard of living is improved, or if they drag down the neighborhoods to which they move. Such follow-up work will in course of time give us knowledge of great value in social work.

Housing and Town Planning.—The American Academy of Political and Social Science devoted the January, 1914, issue of the *Annals* to a comprehensive and useful collection of papers edited by Dr. C. Aronovici. The volume brings out clearly the sharp difference which exists between two schools of housing reformers now in the field. One of these emphasizes reform through legislation, and the great progress that has been made in New York City under the Tenement House Act of 1901 makes this reliance upon legislation seem reasonable. The other school holds that a broader social and economic policy which recognizes the relation between housing and transportation, revised methods of taxation, and organized effort to improve standards of living will accomplish much more than regulative legislation. The *National Municipal Review* for July, 1914, contained an article on the financial side of the problem.

Billerica Garden Suburbs. — The Massachusetts Homestead Commission is to establish the first copartnership housing experiment in the United States, and its first garden suburb embodying all the English ideals—site planning, limited number of houses per acre, wholesale operation, limited dividend and participation by the residents. During the year the Commission has outlined plans designed to adapt this method of financing wage-earners' dwellings to American conditions. Meanwhile it has sought opportunity to give these plans practical application. Of four sites under consideration that at North Billerica, 27 miles from Boston, seemed to offer the greatest advantages. There the Boston and Maine Railroad established its repair shops early in the year, at once creating a demand for good dwellings. As these shops have already brought 1,200 operatives to the little community and will ultimately add 10,000 or more to its population, there is an opportunity for doing a good piece of constructive work. The project has the approval and backing

of officials of the shops, who desire, as much as do the workmen, to secure good living conditions. Land is still cheap, though much of it has been exploited and is no longer held at prices attractive to the workmen. (See also XXX, *Architecture*, and *Landscape Architecture.*)

National Housing Conference.—The fourth National Housing Conference was to have been held at Minneapolis, Oct. 21-23, but was postponed on account of the war. The secretaries of the Association are Lawrence Veiller and John Ihlder, 105 East 22d Street, New York.

FIRE PREVENTION

National Fire Protection Association.—The National Fire Protection Association inaugurated a new plan of work during the year calculated to extend its influence and greatly increase the effectiveness of its efforts. Local chapters of the Association have been established in the cities of Boston, New York, Pittsburgh, Chicago, Montreal, Winnipeg and Los Angeles, whose purpose it is to secure local application and enforcement of the Association's standards.

Building Laws.—The Association completed during the year a model building code for small municipalities which is calculated to exercise a wide influence upon the building construction of the country outside of the large cities. Public efforts to establish legal limits for building heights in the cities of the country are increasingly successful, New York City itself, the greatest offender in this regard, having established a Heights of Buildings Commission to give consideration to this important subject (see *City Planning, supra*). The Salem, Mass., conflagration lent desirable emphasis to the hazard of the wooden shingle, and a number of cities may legislate against this conflagration-breeder before the influence of the Salem disaster is dissipated.

The Salem Fire.—Salem was almost completely destroyed by fire on June 25. Of the population of 44,000, 20,000 were made homeless, 9,000 were thrown out of work, and $15,000,000 worth of property was destroyed. The conflagration illustrated the hazard of a city of wooden houses, and that Salem has learned its lesson is indicated by the regulations established for rebuilding (see *City Planning, supra*). An interesting phase of the fire was the fact that almost every town within a radius of 20 miles sent apparatus to the assistance of Salem, and the speed with which motor apparatus arrived, in some cases only 15 or 20 minutes after the call for help was received, and the considerably longer period which was required by such horse apparatus as responded, would appear to demonstrate the superiority of motor apparatus for prompt long distance speeding to fires.

Massachusetts Fire Hazard Commission.—The Massachusetts Fire Hazard Commission made its report in January, recommending a permanent metropolitan fire-hazard commission which shall have power to compel all cities within the Boston district to maintain their fire departments at a given standard and to maintain a suitable place for the disposal of inflammable refuse, and the power also to maintain a staff of inspectors for the inspection of premises to see that the rules and regulations of the commission and the law creating the commission are obeyed. It lays stress on the desirability of legislation regulating the construction of buildings and the establishment of fire limits according to the fitness of the boundaries instead of an arbitrary selection of certain streets as the outer limits. It would encourage the formation of fire-proof building barriers in the principal districts that conflagration might be arrested by them. The commission recommends a law to prohibit the use of the shingle roof, a law providing that all upright supports below the first floor of a building shall be made of incombustible material, a law limiting the height and increasing the distance between certain kinds of buildings, and a law providing that all smoke and vent pipes for stoves, furnaces and heaters, including gas stoves, shall be protected.

Fire Losses.—According to a statement issued by the National Board of Fire Underwriters, the per capita fire

loss in the United States has shown a gradual increase during the past 30 years, and is unreasonably in excess of that in European countries. For the six years from 1907 to 1912, inclusive, the fire loss in the United States averaged $210,000,000 annually and exceeded that figure in all but two of these years; the loss in the corresponding period of ten years earlier, 1897 to 1902, averaged $148,000,000, and in none of these years exceeded $166,000,000. Between the two periods occurred the conflagrations in Baltimore and San Francisco, with losses of $50,000,000 and $350,000,000, respectively. The loss per capita in the United States in 1910 was $2.33, as against $2.10 in 1900 and $1.50 in 1880. The figures for 300 cities in the United States, having a total estimated population of 20,000,000 or over, show a per capita loss in 1912 of $2.55; the per capita loss in 1912 in 45 European cities averaged 49 cents, and ranged in the various countries from four cents to 90 cents. The seriousness of the conflagration danger in American cities is realized by business men generally, and the National Board of Fire Underwriters is striving to reduce the evil by urging adequate water supply with improved systems of distribution, efficient organization and modern equipment of fire departments, and adoption of building codes providing for improved and safe methods of construction. It is doubtful, however, if the year 1914 will show any reduction in the aggregate of fire loss, but this is because of certain large sweeping fires. There is no doubt that fire hazards are slowly being eliminated by better building construction, and the number of alarms reduced by better housekeeping and more efficient inspections. (See also XIV, *Property and Casualty Insurance.*)

Prevention Standards.—The National Fire Protection Association at its annual meeting, besides the usual voluminous committee reports on the standards of the Association, which are progressively revised and amended each year, adopted the following resolutions, which may be taken as illustrating the progress of fire prevention and the standards set up during the year:

1. The encouragement of fire-resistive building construction through the adoption of improved building codes by all states, cities and towns. The inclusion in such codes of adequate rules for exit facilities based on the occupancy for all buildings.

2. The adoption of laws or ordinances requiring the installation of automatic sprinkler systems as fire-extinguishing agents in all factories, commercial establishments and city blocks. The adoption of ordinances requiring the construction of fire division walls, not only as a property-protecting device, but as providing the best life-saving exit facility.

3. The establishment by law of a fire marshal in every state, who shall be a trained man with trained assistants competent to direct the work as statistician, educator and prosecutor.

4. The investigation of the causes of all fires by public officials.

5. The consolidation of all legal forces so as to provide for the systematic inspection of all buildings by local firemen and technically trained building and factory inspectors so as to insure the vigorous enforcement of rules for cleanliness, good housekeeping and the maintenance of safe and unobstructed exits, fire-fighting apparatus and other protective devices.

6. The especial safeguarding of schools, theaters, factories and all other places in which numbers of people congregate or are employed.

7. The vigorous state and municipal regulation of the transportation, storage and use of all inflammable liquids and explosives.

8. A careful study of municipal water supplies, their adequacy and reliability, with special reference to their adequacy in case of conflagration.

9. The universal adoption and use of the safety match.

10. The education of children and the public generally in careful habits regarding the use of fire.

Perhaps the most important publication which was completed during the year was that on *Field Practice*, which is practically a manual for the use of field men, property owners, fire departments and inspection bureaus. The inauguration of inspection service by the fire departments in all large cities of the country had made an imperative demand for a handbook that should both guide and educate the new inspectors. This book does not set out the standards of the Association, which are already published and pro-

mulgated by the National Board of Fire Underwriters as its official standards; but aims to point out the common diseases or defects of fire equipments, in order that the inspector may recognize at once the fact if it is out of order.

Fire Marshals.—The Indiana legislature at its latest session passed a state fire-marshal law patterned closely after the model law proposed by the Fire Marshals' Association and the National Board of Fire Underwriters. The Kansas legislature created the office of state fire marshal at the 1913 session. The law is devoted chiefly to the procedure to be followed in the investigation of incendiary fires and is very weak in that section relating to the correction of physical hazards. The only specific grant of power is that giving the marshal authority to remove or remedy hazards caused by the presence of combustibles.

Fire Apparatus.—Development of automobile fire apparatus during the year, according to a report of a committee of the National Fire Protection Association, has been mainly along the lines of increased reliability. Service records have naturally brought out some faults of design, and have indicated that in some cases materials and devices not well suited to the purpose have been employed; most of the manufacturers are anxious to discover and correct these weak points, taking advantage of the experience gained in service and at tests. A most instructive series of tests was conducted during the convention of the International Association of Fire Engineers, in New York, in September, 1913. Eleven automobile pumping engines of eight different makes were entered for these tests, which extended over a period of 12 hours; six hours pumping at 120 lb. net pump pressure and three hours each at 200 and 200 lb. net pressure, with only such intervals between as were necessary for changes in hose and nozzles. Three of the 11 machines completed the 12-hour run without interruption; there were a number of interruptions due to loose bolts or broken parts.

POLICE

New York.—There has been a marked improvement in the enforcement of the law in New York under the administration of Police Commissioner Arthur Woods. A strenuous effort has been made by the Mitchel administration to secure the repeal of the laws providing for a court review of the removal of police officials. In the opinion of Mayor Mitchel the revocation of the law granting a court review to police officials was not the denial of a right, but the withdrawal of a privilege granted by the community at a time when that privilege, with its corresponding security of tenure, was deemed to be in the public interest. Notwithstanding the strong effort made to secure the passage of the mayor's bills, popularly known as the "Goethals bills" because they were the conditions upon which Colonel Goethals would consider the acceptance of the police commissionership, they were defeated in the legislature. A comprehensive descriptive and critical report of the police pension fund of New York was prepared by the New York Bureau of Municipal Research for the aldermanic investigating committee; it has been published in book form.

Police Commissioner Woods has established in the busiest precinct of the city a system of signal lamps, each of which is connected with the station house of the precinct on an independent electric current. One of the lamps is located on the beat of each patrolman and the lieutenant at his desk can call the patrolman on post on any beat to the telephone for orders.

Chicago.—The work of the Civil Service Commission in connection with the police department during the early part of 1914 consisted in the efficiency division working with council committees and with the department in securing an appropriation for new police stations and the redistricting of the city. This followed a painstaking inspection of all police stations and a study of the police needs of the various parts of the city and the necessary rearrangement of district lines that had remained the

same for many years in spite of changing conditions.

On July 18 there was a revolver battle between two sets of police officers in the old 22d Street "red-light" district, resulting in the killing of a detective sergeant and the wounding of three or four others. It was alleged that this was a part of a plot against certain police officers and investigators working on vice conditions. A few days afterwards, the general superintendent of police requested the Commission to make a complete investigation and report for the purpose of fixing responsibility therefor. At the same time the matter is under investigation by a special grand jury and the coroner.

This investigation is following an entirely different line from the Commission's investigation of the police department in 1911 and 1912. The police reörganization ordinance which followed that investigation, created the position of second deputy superintendent and a department inspector under him, whose duties, among other things, are investigating the strict enforcement of all laws and ordinances pertaining to matters affecting public morals and the ascertaining of violations of laws and ordinances prohibiting the unlawful sale of cocaine and other habit-forming drugs; therefore it was unnecessary for this Commission to do more than check up and verify the records of the second deputy's office to fix responsibility for improper conditions. These records, in the opinion of the Commission, made a *prima facie* case against some, at least, of the officers in command, and upon a report to that effect being made to the general superintendent, he preferred the charges, and the second deputy's office prosecuted them.

New Jersey has made the police in all boroughs subject to removal only for incapacity, misconduct, non-residence or disobedience, after written charges and a hearing. Each member must be a citizen of the United States and a resident for two years of the borough and between 21 and 55 years of age on appointment.

Service Journals.—Although most of the larger American cities have schools of instruction in which police recruits are instructed in the performance of their duties, practically no American city has made any provision for the systematic instruction of its regular police officers. The establishment of a weekly service journal for policemen in St. Louis and the establishment of a bi-weekly for policemen in Cleveland mark the commencement of vocational training for police officers in America. These service journals contain instructive papers on law enforcement, the correct answers to practical police problems submitted in civil service examinations for promotion, and a department in which answers are published to queries on police subjects submitted by members of the force.

International Association of Police Chiefs.—The annual meeting of the International Association of Police Chiefs was held in Grand Rapids, Mich., in June. Major Richard Sylvester, chief of police of Washington, and president of the Association, in his annual address emphasized the harm that is done to the young mind by the action of motion-picture theaters in showing films of desperadoes, depicting scenes in which crime is committed. One question of vital interest and importance to every large city which created considerable discussion was that of the segregation of the social evil. Until this year the association members have been almost unanimous in the opinion that the only proper way to handle it is through the segregated plan. They have heretofore adopted widely proclaimed resolutions in favor of the old-time protected district. At the Grand Rapids meeting many of the chiefs openly stated that they were on the side of the anti-vice workers and were opposed to segregation. Major Sylvester was reëlected president and Frank J. Cassada, Elmira, N. Y., was elected secretary.

Police Women.—The following is a list of cities having police women and the number employed in each. Los Angeles, 5; Baltimore, 5; Seattle, 5; Fargo, N. D., 1; Bellingham, Wash., 1; Grand Forks, N. D., 1; Topeka, Kan., 2; Toronto, Ont., 2; Omaha, Neb., 1; San Francisco, 3; Rochester, N. Y., 1; Chicago, 20; Ottawa, Ont., 1; Aurora, Ill., 1; San Antonio, Tex., 1; Syracuse, N. Y., 1; Pittsburgh, 4;

Sioux City, Ia., 1; Superior, Wis., 1; Racine, Wis., 1; Salem, Mass., 1; St. Paul, 3; Minneapolis, 2; Denver, 1, and Colorado Springs, 1; a total of 25 cities and 66 police women.

Vice Investigations and the Social Evil.—There have been state-wide investigations of the vice problem in Massachusetts, Wisconsin and Maryland, which have disclosed the inter-urban relations in vice. These states have also appointed state vice or morals commissions. The Massachusetts report is particularly instructive as to the defective mentality of the prostitute class.

The Wisconsin commission presented its report on Dec. 5. It recommends that a morals court be established in cities of the first class with exclusive jurisdiction over all cases involving moral offenses; that a bill similar to the Mann Act applicable to cities, villages and towns be enacted; that a permanent state police department be established with power to investigate immoral practices and the reason for non-enforcement of the law in all instances, and power to enforce the law where local officers fail to do it; that in trials of misdemeanors where a jury is called a verdict of five-sixths of the jurors shall be sufficient to convict or acquit; that the sale of liquor be prohibited in connection with dance halls. There were sundry other proposals which with the above make its recommendations the most drastic thus far presented by any similar commission.

An insistent demand for the safe-guarding of young women at the Panama-Pacific Exposition has been made by individuals and organizations throughout the country. This is significant of the aroused determination better to protect young men and women under conditions of unusual danger to their moral welfare.

The American Vigilance Association and the American Federation for Social Hygiene have been amalgamated into one organization known as the American Social Hygiene Association, of which Charles W. Eliot is president and James B. Reynolds is counsel (see also XV, *Social and Mental Hygiene*).

Local organizations for the suppression of vice, like the Committee of Fourteen in New York or the Committee of Fifteen in Chicago, have continued their local activities with unabated interest and have coöperated in promoting the work of the American Social Hygiene Association, which is an incorporated body.

Reports on local conditions have been issued by the Purity League of Baton Rouge, La., and in Newark, N. J. The Commonwealth Club of California has published a report on the red-light abatement law containing majority and minority reports. This pamphlet was issued in connection with the referendum vote on the red-light law, that measure having been passed by the legislature and then referred to the voters of the state, by whom it was upheld. The Chicago City Council has created a Morals Commission.

NUISANCES

SMOKE

The International Association for the Prevention of Smoke held its annual meeting at Grand Rapids in September. Louis C. Towner of Grand Rapids was elected president and S. H. Viall of Chicago, secretary.

Chicago.—The special committee appointed by the Chicago Association of Commerce for the investigation of the smoke problem and electrification of railways (*A. Y. B.*, 1913, p. 229) completed an extensive smoke reading during the summer; it found that the Chicago & North Western Railway has dropped from 17 per cent. two years ago to three per cent. this past summer, the smoke readings being taken on the Ringellman chart. This showing has been effected by the installation of steam-air jets in the fireboxes of locomotives, quick-action blower valves, superheaters and greater care and watchfulness in firing and handling. The smoke-preventing devices used to secure this result are those recommended by the committee on smoke prevention of the American Railway Master Mechanics' Association, as embodied in the report of the 1913 convention.

Philadelphia.—More than $3,000,000 has been expended in Philadelphia in three years for machinery tending to reduce smoke. A gain of from 10 to 12 per cent. in economy has resulted, as well as a decrease in smoke. The city is placed under a novel surveillance every clear day for violators of the ordinance against the smoke nuisance. Inspectors mount to the top of the City Hall tower and scan the city with field glasses. Factories and other plants that are seen to be emitting thick, black smoke are noted and the offenders directed to abate the nuisance.

Pittsburgh.—Much has been done in Pittsburgh by the awakening of public interest, by changes in equipment in manufacturing plants and locomotives, and by the application of supervision and discipline; the production and emission of smoke are reduced to a point noticeable to all who have been in a position to make a comparison of the city as it is now and as it was some ten years ago. The Mellen Institute of Industrial Research connected with the University of Pittsburgh continues its extensive studies of the smoke nuisance and continues to issue a series of important bulletins detailing its researches.

Cincinnati.—The most important step taken toward the suppression of smoke in Cincinnati is found in the adoption of the boiler, furnace and stack code by the city. The work of the smoke inspection department (*A. Y. B.*, 1913, p. 229) has been of a very high character and all the steps taken have been through peaceful means and not through arrests of offenders.

BILLBOARDS

New York.—An ordinance drafted by Mayor Mitchel's billboard-advertising commission and introduced on Feb. 10, was abandoned after a series of hearings; much opposition developed and the ordinance was thought to be too drastic. After several months of careful study and a series of public hearings, the aldermanic committee reported out an ordinance which the Board of Aldermen adopted unanimously and the mayor approved. The new ordinance contains many provisions for the prevention of fire and other hazards but omits provisions attempting to regulate on grounds of public beauty. In view of the doubtful legality of such regulation, a different method is to be tried, at least for the time being, the method of voluntary coöperation. The City Club suggested an unofficial outdoor-advertising commission, composed of the presidents of the Municipal Art Society, the Mural Painters of America, the Architectural League, the Real Estate Board, and one representative each from four billboard and electric-sign concerns. This proposal has been assented to by the billboard interests, who will voluntarily take up such questions as copy of advertisements, the artistic make-up of the structures and the manner of location in certain portions of the city.

Maryland.—City Forester R. Brooke Maxwell of Baltimore has inaugurated a campaign against billboards, his policy being to make screen plantings to hide hideous examples. The new roadside tree law went into effect on April 15. Preparations were made for the observance of Sign Board Day on June 20, and by correspondence with representative citizens throughout the state and coöperation with many local organizations, the state forester, F. W. Begley, aroused much interest in the work of destroying advertising signs along the public roads. The city and county newspapers took the subject up with enthusiasm and did much toward enlisting the people in general. The Boy Scouts organization rendered valuable assistance in taking up the roads systematically and tearing down thousands of signs. The campaign was a decided success and has started a movement toward beautifying the highways that will be of permanent good.

Rhode Island.—A law enacted by the Rhode Island legislature and an ordinance passed under its terms in Providence have been declared constitutional by the state Supreme Court.

Chicago.—Chicago's billboard ordinance (*A. Y. B.*, 1913, p. 230) has been held unconstitutional in a decision handed down in the Illinois Superior Court. The decree enjoins the city from enforcing the ordinance.

Cincinnati.—In Cincinnati the Common Pleas Court has held that the

"city beautiful" is not a part of the "public welfare"; that the public health, morals or safety and conservation of general welfare are what is intended by the "public wefare"; that a billboard, to be illegal, has to be against the health, morals, safety or welfare; and that a billboard that merely offends upon esthetic grounds is not for that cause illegal, but it may be on other grounds. Six sections of the city ordinance were complained of, and the Court holds three to be valid, namely, those which require six-foot open space between a billboard and adjoining structure; two-foot open space or more between any two billboards; and that no billboard shall exceed 500 sq. ft in area. The sections found to be invalid provided that no billboard shall be nearer to the street line than an adjoining house is; in no case shall any billboard be less than 15 feet from such line; and no billboard shall face a public ground or building unless a special permit is obtained.

St. Louis.—Since the withdrawal in 1913 (*A. Y. B.*, 1913, p. 230) of the suit before the U. S. Supreme Court by which the St. Louis billboard companies sought to have reversed the decision of the Supreme Court of Missouri upholding the right of St. Louis to regulate billboards under the ordinance of 1905 (*A. Y. B.*, 1911, p. 259), the building commissioner of St. Louis has been enforcing the ordinance and the work of remodeling billboards has been proceeding rapidly. There are no double-deck boards now left in the city. While many of the boards do not conform in every particular to the law, the commissioner has given assurances that the work will be speedily completed. The restriction of use of vacant lots under this ordinance has driven the billboard companies to buildings. Roof signs are more prevalent, as there is no limitation as to the height or size of roof signs.

Kansas City.—In Kansas City the municipality is in the peculiar position of having its hands tied by an agreement made in 1905, which was in substance that the city would not molest any billboards erected prior to or after that date until the pending cases had been disposed of in the U. S. Supreme Court. The Kansas City cases have not yet reached the Supreme Court because the billboard companies have not perfected their appeals, although the points involved are the same as those in the St. Louis cases.

Other Cities.—Cleveland has a new billboard ordinance passed in June, 1914. The question of regulation and restriction is under consideration in San Francisco; Louisville, Ky.; Dayton, O.; Houston, Tex., and Newburgh, N. Y. The Denver commission has adopted a fairly drastic ordinance which the billboard men have agreed to accept.

NOISE

Ordinances.—Ordinances regulating noise have been passed by the city councils of Boston, Kansas City, Chicago, Cleveland, New York, St. Louis, Milwaukee, Washington, Newark, N. J., Little Rock, Ark., and Baltimore. These vary in extent and strictness. Chicago has an ordinance providing that whenever complaint shall be filed with any justice of the peace or police magistrate setting forth that any dog has in any manner disturbed the quiet of any person or neighborhood, a summons shall be served. If at the trial it shall appear that the dog has disturbed the neighborhood, the owner or keeper shall be ordered to kill the dog. Boston and Springfield ordinances provide for a fine of $10 for such an offense; in Detroit and St. Paul the fine is fixed at $50; in Kansas City from $5 to $500, according to the degree of the nuisance. These are illustrative of other ordinances established in other cities dealing with the same subject.

There is great diversity in the enforcement of the laws and ordinances. Baltimore has established important precedents in the matter of enforcement, having detailed a police officer whose sole duty is to see that the anti-noise ordinances are enforced. As complaints arise, they are referred to this officer, and by him investigated and corrected whenever possible. He has been successful in remedying nearly all the complaints which have been made in the department about excessive noises. The work of this of-

ficer is not confined to matters covered by the anti-noise ordinance, which relates exclusively to hospital zones, but to matters of various kinds, such as crowing cocks and noisy machinery, in many of which there is no specific ordinance covering the case, but which are corrected by persuasive means and intelligent handling without resorting to the extreme action of arrest.

Quiet Zones Near Hospitals.—Noise regulations are usually included in a number of ordinances which deal with occupations and actions involving such noises. In the case of the cities having such regulations, there are excellent examples of general ordinances dealing with all unnecessary noises near hospitals, applying, of course, only in the immediate neighborhood of such institutions. In some cases the zones of quiet are automatically created within a specified distance of all hospitals, while other cities have enacted laws that are merely permissive, authorizing the establishment of these quiet zones when desirable. Chicago's ordinance is a good example of the mandatory type. It creates a zone of quiet in all territory embraced within a distance of 250 ft. of every hospital. The making, causing or permitting to be made of any unnecessary noise, or the playing of itinerant musicians, upon the public streets, avenues or alleys within any such zone of quiet, which disturbs or may tend to disturb the peace and quiet of any of the inmates of any hospital located therein, is declared to be a nuisance. Every person guilty of a violation of any of the provisions of the ordinance is subject to a fine of not less than $2 nor more than $50 for each offense. New York has an ordinance that may be taken as typical of the permissive type. The several borough presidents are authorized to erect, in their discretion, at corners of intersecting streets, avenues or thoroughfares on which may be located a hospital, lying-in asylum, sanitarium or other institution reserved for the treatment of the sick, signs admonishing pedestrians or drivers to refrain from making any or such noises or fast driving as may tend to disturb the peace and quietude of any or all of the inmates of any such institutions. Any person guilty of making any unnecessary noise or a failure to drive at a speed not faster than a walk on any of the streets, avenues or thoroughfares which have been designated as "hospital streets" and for which such warning signs have been displayed shall, upon conviction or upon a confession of guilt, be fined in a sum not exceeding $10. Cleveland, by ordinance of March 14, 1910, provided for quiet zones within 250 ft. of hospitals. In Louisville an ordinance (1911) makes any unnecessary noise unlawful within 250 ft. of any hospital or infirmary, and authorizes those in charge of such institutions to erect warning signs if they wish to.

MISCELLANEOUS

Civic Education.—As a result of the activities of the committee on civic education of the National Municipal League, a Division of Civic Education has been established by the U. S. Bureau of Education in coöperation with the committee. Coöperation with the National Education Association, other educational organizations and with various civic organizations has been established. In this way independent efforts in the same field have been coördinated and the results of each made available to all. A series of publications has been issued. Arthur W. Dunn is executive secretary of the committee and in charge of the Bureau's work.

Universities and Public Service.—Representatives from 35 universities and 40 other institutions in 15 states met in New York on May 12 and 13 to consider the relation of universities to public service. The conference took up the application of the idea of practical teaching for public service in connection with two types of institutions, the municipal university and the national university. New York City at the present time has two municipal colleges, one for men and one for women, upon which it is spending over a million dollars a year. The New York Chamber of Commerce is planning to give the city $500,000 for buildings for a school of commerce

and administration, to be maintained by the city. To make the discussion concrete, it was thought desirable to discuss the problem of a municipal university with special reference to New York. The enormous opportunities of using New York City as a political science laboratory were pointed out, and it was urged that a national university might likewise use the great opportunities in the various departments and scientific institutions in Washington.

Education of Municipal Employees and Managers.—As a result of the initiative of Director Cooke of the Department of Public Works in Philadelphia, 152 of its employees have been enrolled in night schools for additional instruction. Similar efforts have been made in New York in conjunction with New York University. The faculty of the University of Michigan has arranged for graduate work in municipal administration in the larger sense. The plan is to give the degree of master of arts or science in municipal administration. The minimum requirement will be one year of residence at the university after graduation, together with at least three months of field work, preferably with some bureau of municipal research. The course covers municipal administration in the narrow sense, municipal accounting, city planning, law courses having to do with municipal corporations, public-service corporations, public investments, public health, and descriptive courses having to do with municipal engineering problems, water supply, light, sewage disposal, etc.

Municipal Courts.—The National Municipal League has a committee on municipal courts which in conjunction with the American Judicature Society is preparing a model municipal court act. The programme adopts the principle that all the tribunals of a city should be branches or divisions of a single unified court. It is then possible for that court to create such branches as may be needed from time to time and to provide an administrative organization which will prevent these branches from conflicting, which will conserve judicial energy, and enable every unit of the entire department of justice to work efficiently. The largest powers, such as amending or creating procedural rules and appointing and retiring clerks and other employees, should be exercised through action of the entire court, thus dignifying the trial judge and making him more directly responsible for the duties he must perform. There are many lesser duties, particularly in the administrative field, which are best performed directly by an individual responsible head of the court, who may be known as chief justice or presiding judge. The chief justice should be empowered to establish branch courts and direct the judges and other agents so that they shall do the work for which they are best fitted. The proposed model municipal court organization, with its numerous branches and assignments of judges by a chief justice, permits each judge to be chosen for that field of law to which he is best fitted by experience or talent and keeps him there long enough to make him expert. The chief justice should also make dockets and assign cases, thus distributing the work equitably and utilizing his force of judges for the largest output of the highest standard.

New York Board of Inebriety.—In 1911, under authority of an act of 1910, New York City established a Board of Inebriety to maintain a hospital and industrial colony for inebriates. The board consists of seven members, five unpaid members (at least two of whom must be physicians and two clergymen) appointed by the mayor, with the commissioners of charities and corrections *ex officio*. The first annual report of this Board (for the year 1913) describes the situation and purchase of a site of 750 acres in Orange County, and the plans for buildings, which are to be on the cottage system. There is also included a report on the agricultural development of the property. As soon as the necessary buildings are erected, the colony will be inaugurated. This is the first American municipal institution for the care and treatment of inebriates. Massachusetts has a state institution for this purpose; Pennsylvania has established a commission to organize a similar institution; and Connecticut and Minnesota have passed laws on the subject.

Graft. — An extended review of graft investigations and prosecutions was printed in the July issue of the *National Municipal Review*. Lieutenant Becker, of the New York police force, having been granted a new trial, was again convicted of murder in the first degree in connection with the Rosenthal murder (*A. Y. B.*, 1912, p. 215; 1913, p. 226). The four gunmen implicated in the same crime were electrocuted in April. As an aftermath of the impeachment of Governor Sulzer, the district attorney of New York, Charles Whitman, conducted a John Doe proceeding which brought out a very considerable amount of information about the letting of contracts in New York City and State, thus far, however, without resulting in many convictions. The Chicago Bureau of Public Efficiency made a report to the City Council in March alleging wholesale squandering of public funds and payroll padding in the city hall. Indictments to the number of 116 have been returned in a single graft investigation against 28 present and former officials in East St. Louis; the trials are still in progress. Pleas of abatement have been put forward on behalf of the mayor of Terre Haute and others indicted with him on charges of election and primary fraud.

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STATISTICS OF CITIES OF 50,000 POPULATION OR OVER

The figures in the following table, courteously supplied by the treasurers or comptrollers of the various cities, are the latest available. They relate in general to the fiscal year ending in 1914; in the case of cities whose fiscal year coincides with the calendar year, the figures are for the year ending December 31, 1913.

	Population, 1910	Assessed Value of Property, thousands	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund or Surplus	Total Receipts	Total Expenditures
Akron, Ohio	69,067	105,612	12.60	5,395,258	114,036	4,146,444	4,322,006
Albany, N. Y.	100,253	102,365	21.60	6,128,185	1,336,086	4,997,436	5,123,943
Allentown, Pa.	51,913	46,807	6.40	412,000	40,861	492,750	524,823
Altoona, Pa.	52,127	26,711	25.00	2,021,000	306,216	453,396	234,612
Atlanta, Ga.	154,839	172,288	12.50	6,318,500	1,330,500	4,281,351	4,394,275
Baltimore, Md.	558,485	781,691	20.10	78,917,679	25,444,459	23,378,116	24,381,195
Bayonne, N. J.	55,545	57,095	14.55	4,435,264	815,844	.....	.....
Birmingham, Ala.	132,685	95,458	10.00	5,861,900	267,170	1,570,831	1,793,741
Boston, Mass.	670,585	1,520,974	17.50	120,525,581	41,564,210	44,908,689	43,667,581
Bridgeport, Conn.	102,054	111,251	19.20	2,471,500	665,453	1,436,885	1,321,718
Brockton, Mass.	56,878	50,351	21.00	3,582,200	635,629	2,619,772	2,661,939
Buffalo, N. Y.	423,715	346,560	26.0938	34,910,736	3,703,288	18,251,276	18,287,089
Cambridge, Mass.	104,839	127,891	21.40	11,986,600	4,842,577	4,342,014	4,330,948
Camden, N. J.	94,538	61,926	20.00	5,719,450	1,325,795	2,899,355	2,738,359
Canton, Ohio	50,217	59,469	12.30	1,681,012	171,311	1,130,658	1,166,099
Charleston, S. C.	58,833	20,221	30.00	4,148,500	.....	977,729	932,784
Chicago, Ill.	2,185,283	981,787	16.60	28,216,000	3,038,072	62,270,517	59,466,150
Cincinnati, Ohio	363,591	537,212	15.62	64,775,250	9,564,805	14,239,866	12,922,783
Cleveland, Ohio	560,663	814,308	15.50	40,663,737	2,218,084	15,536,617	19,577,047
Columbus, Ohio	181,511	253,110	6.99	17,573,100	9,706,232	6,030,948	5,761,442
Covington, Ky.	53,270	26,383	26.00	2,179,400	.....	.....	.....
Dallas, Texas	92,104	107,970	19.20	6,608,000	990,796	4,244,078	3,183,789
Dayton, Ohio	116,577	153,774	14.40	5,743,380	137,200	3,585,566	3,440,139
Denver, Colo.	213,381	401,902	11.85	1,583,800	771,769	.....	.....
Des Moines, Iowa	86,368	118,703	5.–32.10	959,000	.....	.....	.....
Detroit, Mich.	465,766	525,856	19.69708	11,636,000	3,853,480	19,864,707	17,887,101
Duluth, Minn.	78,466	72,731	16.07	2,150,000	426,724	2,405,663	2,290,125
East St. Louis, Ill.	58,547	13,548	77.50	719,000	.....	.....	.....
Elizabeth, N. J.	73,409	64,732	11.96	3,839,350	515,983	2,183,688	2,120,912
Erie, Pa.	66,525	50,104	19.75	641,300	131,567	500,791	500,000
Evansville, Ind.	69,647	41,128	11.10	1,637,100	.....	881,593	814,956
Fall River, Mass.	119,295	102,243	23.20	6,322,250	.....	.....	.....
Fort Wayne, Ind.	63,933	36,858,550	27.50	286,000	14,126	925,911	805,746
Fort Worth, Texas	73,312	65,932	19.30	5,761,000	435,413	1,648,129	1,572,680
Grand Rapids, Mich.	112,571	113,791	16.50	3,865,800	384,466	.....	.....
Harrisburg, Pa.	64,186	49,646	9.50	11,621,051	282,049	1,508,596	1,005,560
Hartford, Conn.	98,915	173,609	20.50	7,723,481	1,550,000	5,862,438	4,599,191
Hoboken, N. J.	70,324	69,331	19.06	3,082,532	528,220	.....	.....
Holyoke, Mass.	57,730	63,445	18.80	3,629,500	512,447	.....	.....
Houston, Texas	78,800	97,059	18.50	9,755,000	629,531	6 2,486,86	2,398,017
Indianapolis, Ind.	233,650	240,123	23.60	3,609,300	207,874	2,499,154	2,707,082
Jacksonville, Fla.	57,699	58,049	11.80	3,823,000	25,400	.....	.....

STATISTICS OF CITIES OF 50,000 POPULATION OR OVER—*Continued*

	Population, 1910	Assessed Value of Property, thousands	Tax Rate per $1,000	Bonded Indebtedness	Sinking Fund or Surplus	Total Receipts	Total Expenditures
Jersey City, N. J.	267,779	287,852	22.00	26,704,153	6,502,894	8,944,006	8,940,913
Johnstown, Pa.	55,482	48,612	6.00	626,000	317,495	.....	.....
Kansas City, Kans.	82,331	92,103	6.76	6,748,666	761,658	2,691,834	2,321,212
Kansas City, Mo.	248,381	188,633	12.50	6,321,000	1,470,243	5,361,515	5,105,937
Lawrence, Mass.	85,892	78,776	18.00	2,783,100	298,190	3,386,357	3,371,203
Los Angeles, Cal.	319,198	508,300	16.00	37,602,462	3,717,889	12,787,325	12,622,128
Louisville, Ky.	223,928	207,000	17.60	12,501,200	1,387,784	5,801,742	5,217,184
Lowell, Mass.	106,294	87,872	19.40	3,945,610	1,276,350	4,881,146	4,212,853
Lynn, Mass.	89,336	86,005	20.00	4,929,500	1,268,803	4,293,241	4,305,328
Manchester, N. H.	70,063	69,208	15.20	1,805,700	646,828	2,571,551	2,488,514
Memphis, Tenn.	131,105	104,345	15.80	4,930,000	.....	.....	.....
Milwaukee, Wis.	353,857	496,342	18.08	11,524,750	947,250	14,280,410	14,018,648
Minneapolis, Minn.	301,408	219,669	35.76	20,655,200	4,020,447	11,767,969	11,650,818
Mobile, Ala.	51,521	33,033	11.00	3,948,500	.....	.....	.....
Nashville, Tenn.	110,364	77,161	15.00	6,212,602	322,257	2,635,184	2,392,615
Newark, N. J.	347,460	394,301	20.20	30,802,200	8,899,729	34,547,963	31,479,875
New Bedford, Mass.	96,652	104,536	20.20	9,357,000	1,809,454	7,018,452	6,986,023
New Haven, Conn.	133,605	145,499	17.50	3,627,500	41,854	2,851,183	2,896,989
New Orleans, La.	339,075	245,323	22.00	37,937,568	.....	7,123,381	7,508,820
New York, N. Y.	4,766,883	8,049,860	17.70 to 19.00	1,264,887,273	325,905,028	.....	.....
Norfolk, Va.	67,452	68,233	16.50	9,143,550	1,240,308	2,539,723	2,580,987
Oakland, Cal.	150,174	153,845	16.75	8,338,970	None	5,109,086	4,670,194
Oklahoma City, Okla	64,205	72,171	20.00	3,713,500	400,000	851,200	728,500
Omaha, Neb.	124,096	36,313	65.60	6,270,000	None	3,144,336	3,359,472
Passaic, N. J.	54,773	47,088	17.10	2,306,250	269,695	.....	.....
Paterson, N. J.	125,600	103,299	17.60	5,172,000	1,023,302	6,211,096	6,151,282
Pawtucket, R. I.	51,622	53,741	16.50	5,794,000	1,551,290	2,157,030	2,267,608
Peoria, Ill.	69,950	22,965	58.70	500,000	28,000	1,469,995	1,538,931
Philadelphia, Pa.	1,549,008	2,210,901	15.00	117,080,250	17,960,700	52,667,030	54,256,250
Pittsburgh, Pa.	533,905	762,928	15.40	43,097,973	9,549,548	19,978,826	20,160,633
Portland, Me.	58,571	69,326	21.20	2,774,500	.....	3,323,433	3,198,438
Portland, Ore.	207,214	314,105	7.70	14,684,900	939,711	9,995,841	11,175,042
Providence, R. I.	224,326	344,204	16.50	18,816,000	8,390,936	11,555,458	11,523,702
Reading, Pa.	96,071	56,243	10.00	1,690,000	204,148	742,350	711,920
Richmond, Va.	127,628	149,051	14.00	13,833,458	3,427,794	4,609,177	4,730,066
Rochester, N. Y.	218,149	191,420	19.345	12,023,600	1,216,101	7,801,732	7,603,009
Saginaw, Mich.	50,510	45,373	16.35	2,086,600	.....	1,469,716	1,405,524
Salt Lake C'y, Ut.	92,777	68,000	13.00	4,360,000	22,000	1,663,913	1,626,540
San Antonio, Tex.	96,614	92,330	15.40	5,548,000	538,498	.....	.....
San Francisco, Cal.	416,912	647,104	20.20	39,739,300	862,885	26,491,212	21,262,565
Savannah, Ga.	65,064	54,986	13.90	2,616,750	14,000	1,116,864	922,363
Schenectady, N. Y.	72,826	55,669	25.20	5,476,982	853,057	4,081,528	3,907,405
Scranton, Pa.	129,867	81,865	7.32	2,019,500	437,118	1,568,226	1,282,780
Seattle, Wash.	237,194	215,362	19.86	15,440,400	29,700	16,367,753	17,845,467
Somerville, Mass.	77,236	72,163	19.80	1,674,000	.....	3,459,960	3,326,217
South Bend, Ind.	53,684	30,605	12.90	528,500	13,782	966,485	931,145
Spokane, Wash.	104,402	89,995	12.00	4,760,000	151,364	3,778,208	3,125,063
Springfield, Ill.	51,678	17,677	53.10	754,700	.....	.....	.....
Springfield, Mass.	88,926	180,129	16.50	8,697,800	1,148,471	6,104,151	6,178,038
St. Joseph, Mo.	77,403	40,000	13.00	916,350	130,907	576,300	552,000
St. Louis, Mo.	687,029	616,698	23.50	22,438,000	2,053,955	14,055,767	15,852,823
St. Paul, Minn.	214,744	138,891	32.30	10,711,000	362,334	9,864,521	7,762,157
Syracuse, N. Y.	137,249	139,471	16.58	10,909,487	.....	6,963,156	7,102,062
Tacoma, Wash.	83,743	74,291	13.00	11,451,467	238,128	5,845,121	6,188,426
Terre Haute, Ind.	58,157	33,871	11.50	592,000	28,404	830,773	552,790
Toledo, Ohio	168,497	234,095	14.40	9,181,577	1,732,720	.....	.....
Trenton, N. J.	96,815	79,162	21.80	6,878,122	2,174,657	3,260,736	3,215,281
Troy, N. Y.	76,813	59,503	20.57	2,403,147	287,304	1,470,132	1,438,127
Utica, N. Y.	74,419	43,360	22.94	2,073,895	170,095	2,686,394	2,542,852
Washington, D. C.	331,069	345,124	15.00	6,939,150	None	14,567,515	14,627,156
Waterbury, Conn.	73,141	70,088	18.17	3,843,000	100,000	.....	.....
Wichita, Kan.	52,450	64,834	19.50	1,927,716	164,219	472,980	411,716
Wilmington, Del.	87,411	57,526	13.50	4,375,900	.....	1,952,782	1,952,782
Wilkes-Barre, Pa.	67,105	58,800	6.99	1,171,700	60,680	887,716	769,736
Worcester, Mass.	145,986	161,740	17.60	12,549,325	5,325,331	5,670,264	5,548,960
Yonkers, N. Y.	79,803	91,903	21.98	9,030,391	278,371	9,100,663	9,034,352
Youngstown, Ohio.	79,066	150,152	13.00	2,970,514	152,791	2,440,476	2,235,788

VIII. TERRITORIES AND DEPENDENCIES

FRANK MCINTYRE

ALASKA

Economic Conditions.—During the year Alaska has received in Congress and in the press unusual attention. This has been due to the aggressive policy of the Administration and, particularly, of the Secretary of the Interior, in urging legislation looking to the conservative development of the resources of Alaska. These efforts have encouraged the people making their homes in Alaska and have attracted to the territory new settlers. The white population is estimated at 39,000, an increase of 3,000 over the estimate of 1913.

Congressional Legislation.—In addition to general legislation affecting Alaska in common with the United States, Congress passed two bills of importance to the territory. The first was the railroad legislation, to which reference was made in the YEAR BOOK for 1913 (p. 235) "to authorize the President of the United States to locate, construct and operate railroads in the Territory of Alaska," approved March 12. This Act authorizes the expenditure of not to exceed $35,000,000, and makes an initial appropriation of $1,000,000. The work of locating these roads is now under way. (See also I, *American History;* and XXI, *Civil Engineering.*)

The second was an Act providing for the leasing of coal lands in the territory of Alaska, which was approved on Oct. 20. This bill embodies, in a general way, provisions for the reservation of coal lands for governmental uses and for the leasing in limited tracts of lands not so reserved. While, in a general way, discretion in the matter of leases is left to the Secretary of the Interior, the classes of persons, associations and corporations to whom leases may be made and the quantities of land which may be leased in each case are definitely set forth in the Act. It is not unlikely that the long hoped-for development as a result of this Act will be delayed pending action under the law authorizing the Government to construct railroads in the territory. (See also I, *American History;* X, *Public Lands;* and XVIII, *Mineral Industries.*)

Local Legislation.—A number of laws passed at the last session of the Alaska legislature have been inoperative, due in some instances to the fact that in passing them the legislature exceeded its powers, among these being the revenue laws. In other instances no appropriations were made for their enforcement, and the failure of the revenue laws added to the difficulty of enforcing those laws where appropriations had been made.

An Act passed by the territorial legislature providing for the formation of banking corporations and the regulation of banks in Alaska became operative on July 28 and for the first time in its history the banks of the territory other than national banks are under territorial inspection and control.

The powers conferred on the legislature by the organic act passed by Congress in 1912 are extremely limited, and President Wilson and the Governor of Alaska recommend that Alaska be given a full territorial form of government.

Education.—There are now 27 public schools for white children, employing 38 teachers, with a total enrollment of 941 pupils. The law for the compulsory education of children between eight and 16 years passed by the legislature in 1913 has, due to

local conditions, not been generally enforced.

Health.—The health conditions among the white population of Alaska continue to be excellent. Unfortunately, this is not true with the native population. Despite the increased attention which has been given to this subject, sanitation and hygiene are absolutely unknown in many localities, and the present medical service is entirely inadequate. Fifteen per cent. of the natives are affected with tuberculosis. The Governor again recommends an increase of hospitals and of the efforts now made to instruct the natives in hygiene and sanitation.

Railroads and Roads.—There has been no railroad construction in Alaska during the past several years. The total railroad mileage is 466 miles. The Governor, in his annual report, recommends that Congress appropriate at least $750,000 for the construction and maintenance of wagon roads, bridges and trails. The expenditures of the Alaska Road Commission upon roads and trails during the fiscal year 1914 were $170,688.37. The funds available were insufficient to enable the Commission to undertake any elaborate new construction and the work was confined to the maintenance of existing roads and the completion of several projects previously undertaken. The total mileage completed to June 30 was: wagon trails, 872; sled roads, 614; trails, 2,166.

Industries.—The mineral output in 1913 was valued at $19,470,336, as compared with $22,537,821 in 1912. The production of gold showed a decrease from the previous year, which is partially accounted for by a shortage of water in the placer-mining regions. The outbreak of war in Europe has been felt in the Southeastern region, where a comparatively large number of men employed in mines financed by Belgian capital were discharged. The coal fields being still undeveloped, the importation of coal into Alaska was necessary. The amount imported during the year from the United States and from foreign countries was 93,101 tons, valued at $295,123, the decrease from last year being due, in part, to the extended use of fuel oil for various industries.

Statistics for 1913 show that there were 21,721 persons engaged in the fishery industry, a decline of 2,542 as compared with 1912. The total investment in fisheries was $39,047,305, principally in canned salmon, a decline of $1,216,152 from 1912. The total of fur shipments in 1913 amounted to $678,062.91. The number of fur-seal skins shipped was 2,296, and fox skins 436, the net proceeds amounting to $67,660.51. Reports show that there were 47,266 reindeer on June 30, 1913, a net increase of 23 per cent. during the fiscal year. Five thousand were killed for food and skins during the year. The total value of all reindeer herds was $1,181,900, as against $1,162,060 in 1912.

Commerce.—The volume of merchandise shipments, including precious metals and copper, between Alaska and the United States and between the territory and foreign countries in 1914 amounted to $61,076,692, a decrease of $6,073,827 as compared with 1913. This was due to the falling off of gold production and the decrease of fish in some sections.

Shipments of merchandise from the United States to Alaska show an increase of $1,749,913 over the previous year, while shipments of domestic merchandise from Alaska to the United States decreased by $2,611,644, and shipments of domestic gold and silver $2,266,909. There was an increase of copper production of $296,937 over that of the previous year and of $44,268 for marble exports.

The exportation of Alaskan products to the United States for the last three fiscal years has been as follows:

	1912	1913	1914
Gold	$17,156,989	$14,576,015	$12,291,672
Fish and fish products	14,300,240	17,202,287	15,201,438
All other	7,297,472	5,934,971	6,427,074

GUAM

Economic Conditions.—On March 28, 1914, W. J. Maxwell assumed office as Governor of Guam and Commandant of the Naval Station. He reports that the prevailing conditions show a general improvement. Increased acreage of land has been cleared and put under cultivation, and much attention has been paid to the development of fruit trees. During the year a total of $35,200.73 was expended by the Department of Public Works, $11,229.40 being for new construction. The native population is 12,628, an increase of 179 during the year.

Education.—The schools of the island show but little improvement during the year. One high school principal was added to the staff, and a new school was built at Umatac.

Sanitation.—Despite the efforts of the health authorities, tuberculosis continues to produce more deaths than any other disease, 66 deaths occurring during the year. The new tuberculosis hospital is practically ready for occupancy. Fifty-nine gangosa cases have been added to the list, and there were eight deaths due to this disease.

The poor quality and the lack of variety and quantity of fresh fruits and vegetables and of good facilities for handling and preserving them is one of the most serious problems the health department has to overcome. Owing to this condition and to the fact that all towns have not yet ample water supply and that the funds for the treatment and instruction of natives are limited, the general health of the native population has not materially improved during the year.

Commerce and Industries.—The total imports for the year amounted to $165,210.15, an increase of $4,977.38 over last year. The imports from the United States have slightly increased, while those from Japan have decreased in the amount of $21,745.44. The most noticeable increase is with Manila, which jumped from $2,045.06 in 1913 to $25,120.16. The exports amounted to $51,092.22, mostly copra, an increase of $13,720.33 over last year. Copra exportations increased by 104 tons.

HAWAII

Economic Conditions.—Sugar comprises approximately 80 per cent. of Hawaii's exports. This industry was depressed as a result of the new tariff law, but the increased prices of sugar since the beginning of the European War have restored this industry to its usual prosperous condition. Canned pineapple, the second industry in importance in Hawaii, has been depressed during the year, apparently as the result of an oversupply. Labor conditions have improved.

During the year 50 corporations were created and eight mercantile corporations were dissolved, leaving at the close of the year 906 domestic corporations, an increase of 42. Five new forest reserves were created. The territory expended for roads during the year $1,274,970.93. The Marconi Wireless Telegraph Co. has completed the construction of two powerful stations on the Island of Oahu for the trans-Pacific wireless service for transmitting messages to and from San Francisco and Japan. The legislature of Hawaii did not meet in the year 1914.

Population.—The estimated population on June 30 was 227,391, an increase of 18.49 per cent. since the census of 1910. The most rapid increase has been in the number of Filipinos, 3,183 being introduced by the Hawaiian Sugar Planters' Association during the year. Nothing has been done looking to the further introduction of Europeans. The opening of the Panama Canal is expected to stimulate European immigration.

Education.—The sum of $819,519.53 was expended for school purposes during the year. There are now 168 public schools, with 713 teachers and 26,990 pupils; and 51 private schools, with 307 teachers and 6,298 pupils.

Sanitation.—The general health conditions in the territory have been good and no serious epidemics have occurred. The total number of deaths was 3,707, the greatest number (426) from pneumonia, and 411 from tuberculosis. The campaign against tuberculosis, as well as against rats and mosquitoes, has been vigorously prosecuted with good results. The number of lepers has decreased to 666.

Commerce and Industries.—The sugar exportations continue to be much larger than all other exports combined, though there was a decrease of $3,467,315 from the value exported last year, owing to the depression in prices. There was a great increase in the exportation of coffee. The increase in fruit and nuts noted in the table below is due mostly to the pineapple industry.

The following table shows the values of the principal local products shipped from Hawaii to the United States and foreign countries in the last three years:

	1912	1913	1914
Sugar	$49,961,536	$36,662,227	$33,194,912
Coffee	397,761	492,883	824,512
Fruit and nuts	2,948,733	4,055,622	5,061,525

PHILIPPINE ISLANDS

Peace and Order.—There was no disturbance of public order during the year in any part of the Philippine Islands. The disarmament of the Moros, referred to in the YEAR BOOK for 1913 (p. 238) was concluded without further difficulty. Progress in the Moro province was believed by the military and civil authorities to justify certain changes in that hitherto turbulent district. On the relief of General Pershing, who was assigned to duty in the United States, the Military District of Mindanao and Jolo was discontinued and all American troops were withdrawn therefrom. Frank W. Carpenter, one of the oldest civil officials of the Philippine Government, was appointed governor, succeeding in this office the commanding-general of the abandoned district. To the province was added the non-Christian province of Agusan and the territory was given the title of Department of Mindanao and Sulu. The appointment of a civilian as governor and the withdrawal of American troops have been followed by no untoward incidents during the year. The Philippine Commission has passed a new organic act for the new Department, having for its purpose the unification of the inhabitants thereof with the Christian people of the archipelago and the gradual elimination of the special government which has been necessary heretofore for the Mohammedans and pagans of the Department.

Political Conditions.—There has been no change in the personnel of the Philippine Commission during the year. There was no general election in the Islands and political interest was directed almost wholly to the discussion in the press and by the public of the anticipated action of the new Administration and Congress with reference to the future government of the Islands. Mr. Jones (Va.), chairman of the House Committee on Insular Affairs, introduced a bill "to declare the purpose of the people of the United States as to the future political status of the people of the Philippine Islands, and to provide a more autonomous government for those Islands." This bill passed the House of Representatives with but few amendments and is now pending action in the Senate. The progress of the bill through the House Committee and through the House illustrated fairly well the slight difference of opinion in the United States as to what should immediately be done for the Philippine people. It was made clear that the unanimous desire was to give the Philippine people a liberal form of government under which they had all the rights to which Americans are accustomed and all the participation in the government which they were prepared to exercise in their own interests. As to the future political status of the Philippine people, there seemed a sharper difference of opinion, but even in this case there was apparently not so much difference as to what the status should be as to the advisability of making at this time a declaration as to this status. Briefly, the bill as it passed the House declared it to be the purpose of the people of the United States to withdraw their sovereignty from the Phil-

ippine Islands and to recognize their independence as soon as a stable government can be established therein.' This declaration was in the form of a preamble, which was followed by an organic act providing a government in which the United States would have control of national and international matters and the Philippine Government, created in the organic act, control of all local matters, the President of the United States appointing the Governor-General and justices of the Supreme Court and having, with the Governor-General, an absolute veto of all legislation. Congress reserves to itself the right to annul any act of the Philippine legislature. The legislature created is of the usual American form of two houses, both being elective, with the exception that the Governor-General is authorized to appoint two senators and nine representatives, these being the proportional representation to which the non-Christian population not heretofore represented is entitled. While there exist in the Philippine Islands well-defined differences of opinion as to certain features of the bill, the general opinion seems to be entirely favorable, and the Philippine Assembly passed a resolution thanking the House of Representatives for its action and urging the Senate to pass the bill promptly. It is anticipated that the bill will be considered by the Senate in its 1914-15 session. (See also I, *American History.*)

Education.—During the year there has been increased interest and enthusiasm for public instruction throughout the Islands and the present condition of the schools is satisfactory. The work in athletics and physical training has shown steady advancement, and increased attention has been given to industrial instruction, the extension of household industries, and instruction in good manners and right conduct. The total annual enrollment for the year was 618,478, an increase of more than 100,000 in the year. The number of schools increased from 2,934 in March, 1913, to 4,304 in September, 1914. The number of American teachers has decreased from 658 in 1912-13 to 609; while the number of Filipino teachers has increased from 7,013 to 8,759, showing the accomplishment in training Filipino teachers.

Sanitation.—Health conditions continue to improve and there are now over 60,000 fewer deaths in the Philippine Islands per annum than in 1905. Tuberculosis, malaria, beri-beri and intestinal diseases are still responsible for more than 100,000 deaths annually. After an absence of over two years cholera appeared in Manila on Aug. 24, 1913, and later in the provinces. To Dec. 1, 1913, there had been 161 cases in Manila, of which 110 died; and in the provinces there were 165 cases, with 107 deaths. Despite the efforts to combat cholera, it again appeared in July, 1914, and from that time until Sept. 10 418 provincial cases occurred. The fact that only 35 of these occurred since Sept. 1 indicates that the cholera organization in the provinces has the situation under satisfactory control. There are still a few cases developing in Manila, but there also cholera is being held down effectively. On Dec. 31, 1913, there were 3,298 lepers at the Culion leper colony, 795 having been transferred there during the year. The segregation of lepers is being continued and every effort is being made to solve the leprosy problem. Only two cases of human plague occurred during the year.

Commerce and Industries.—As measured by the record of exports and imports, the year was a prosperous one. Imports for the year ending June 30 amounted to $56,011,570, approximately $300,000 less than the total for the preceding year. This is due entirely to the decrease in the importation of rice. As this was the result of a better rice crop in the islands, rather than of a depression in trade, the reduction in the imports was not an unfavorable sign. The value of imports from the United States shows an increase of more than $3,000,000 over the most favorable previous year. Exports amounted to $51,238,048, approximately $2,400,000 less than the total of last year. This falling off was largely due to the effect of the drought and typhoons of 1912 on the copra and hemp production. As shown in the following table, exports to the United States were larger than in any preceding year:

Year	Imports		Exports	
	From the United States	From Other Countries	To the United States	To Other Countries
1911	$19,483,658	$30,350,064	$16,716,956	$23,061,673
1912	20,604,155	33,945,825	21,517,777	28,802,059
1913	25,387,085	30,940,498	19,848,885	33,834,441
1914	28,571,821	27,439,749	22,047,105	29,190,943

PORTO RICO

Economic Conditions.—The depression in the sugar industry noted in the last issue of the YEAR BOOK (p. 240) was continuous until August, when, due to the European War, the price of sugar became abnormally high. Notwithstanding the fact that the 1913-14 crop had been largely marketed and but few Porto Rican producers received direct benefits from the increased prices, the industry has been greatly encouraged, and, instead of the decreased acreage in sugar anticipated for 1914-15, there will be the largest acreage ever planted in Porto Rico. This increased planting may well in its ultimate effect greatly increase the difficulty of adjusting Porto Rican sugar production to the changed tariff conditions. The same condition which encouraged the sugar industry has at least frightened the coffee growers. When their condition is compared with other coffee-producing districts, the fear would seem to be largely groundless.

Political Conditions.—The Secretary of War in his report for 1913 favored the granting of American citizenship to Porto Ricans and giving to them a greater participation in the government of the island. This was in general accord with the desires of the vast majority of the people of Porto Rico and with the views of several preceding Secretaries of War. Bills differing in details but embodying these ideas have been introduced in both Houses of Congress and are now pending. The House Committee on Insular Affairs has unanimously reported favorably the bill introduced by Mr. Jones (Va.), its chairman, providing a new organic act for Porto Rico. This bill grants citizenship to Porto Ricans and greater autonomy than is granted to organized territory of the United States.

Meantime, under the present organic act, the President has appointed Martin Travieso and Manuel V. Domenech Secretary and Commissioner of the Interior, respectively, thus for the first time appointing Porto Ricans to executive positions on the Executive Council and giving to Porto Ricans a majority of the Executive Council, or upper house of the legislature. A later change in the Executive Council was the appointment of Antonio Barcelo as a legislative member. Judge J. W. Bonner has been reappointed auditor.

Legislation.—Congress has enacted no purely Porto Rican legislation during the year. The bill providing a new organic act is pending and a provision in the Rivers and Harbors Bill for the improvement of San Juan harbor, to the great disappointment of the Government of Porto Rico, failed of passage, in common with all provisions for new projects in the bill. The local legislature authorized the issue of $1,000,000 of bonds for public improvements; $1,000,000 to refund loans made by the central Government to municipalities and school boards, and $400,000 to complete the irrigation work.

Education.—The total enrollment in all public schools was 207,010, an increase of 45,225, or nearly 28 per cent., over the preceding year. The amount expended for educational purposes during the year was $2,498,584.45. Practical instruction in agriculture has been given special attention. The average daily attendance in all public schools increased nearly one-third over last year. The average number of schools in operation was 4,330, and the average number of teachers 2,564. Fifty-three school buildings were built during the year

in rural districts, and 15 in urban centers.

Sanitation.—During the past year the Sanitation Service has succeeded in reducing the death rate to the lowest level ever recorded in the history of Porto Rico, namely 18.6 per thousand. Nine towns and cities installed water works during the year, making 26 that now possess this modern necessity. The proper construction and plumbing of dwelling houses received special attention with good results. The work of eradicating hookworm was pushed as rapidly as funds permitted. During the year there were reported 1,587 deaths from tuberculosis, a reduction of 24 from the preceding year.

Industries and Commerce.—The imports during the year amounted to $36,406,787, a decrease of $493,275, and the exports to $43,102,762, a decrease of $6,000,803. This decrease in the value of exports is almost wholly accounted for by the decline in sugar exportations, which in quantity amounted to a decrease of 62,000 tons, and in value, $6,378,823, in price, $6.43 per ton. Eighty-four per cent. of the total external commerce was with the United States.

Eighteen new domestic corporations with a paid-in capital of $45,000 and eight foreign corporations were registered and authorized to transact business in the island. Careful attention has been given to the development of agriculture. The Board of Commissioners of Agriculture has been completely reorganized and its work greatly enlarged. The coffee crop exceeded all previous records, although the value thereof was less than for the preceding year, due to a decrease in price of 0.8 cent per pound. The decrease in the value of tobacco exportations was due, in part, to the prolonged strike of the cigar workers, which lasted almost four months, ending June 8. The exportations of unmanufactured tobacco increased 7.7 per cent. The value of fruit shipments shows an increase of about 8 per cent. over the preceding year, and miscellaneous shipments also show a healthy increase.

The total exports for the past three years are shown in the following table:

	1912	1913	1914
Sugar	$31,544,063	$26,619,158	$20,240,335
Coffee	6,754,913	8,511,316	8,193,544
Tobacco	7,439,042	9,012,257	8,962,647
Fruit and nuts	2,377,762	3,120,919	3,400,903
All others	1,576,390	1,839,915	2,305,333
Total	$49,692,170	$49,103,565	$43,102,762

AMERICAN SAMOA

Commercial Development.—The year in American Samoa has been uneventful. However, the neighboring German islands in the group have temporarily changed hands as a result of the European War. The Governor in his annual report recommends the establishment of an agricultural experiment station which not only would furnish information to the U. S. Department of Agriculture but would teach the natives the proper methods of cultivation of cocoanuts and induce them to establish other industries usually successful in that climate. It is anticipated that the opening of the Panama Canal will stimulate the commercial development of the island, and consideration is being given to the establishment of fuel oil tanks in the harbor of Pago Pago as a distributing point to supply the demand of the natives for oil for steaming and lighting purposes, and also for replenishing passing steamers.

Education.—The Governor reports that educational facilities are still most unsatisfactory, due to the lack of funds, and renews the recommendation of his predecessor that the education of the natives be taken over by the Bureau of Education. At present there are but two government schools in American Samoa, one being on the Bay of Pago Pago under the supervision of an American teach-

er, and the other at Leone, maintained by a contract with the Marist Order of Brothers, both being for boys only. The only other schools are the village schools run by native pastors and missionary schools.

Health.—The Samoan Hospital has developed into one of the most important institutions maintained in the island, and as a result of its operations and of the vigorous campaign waged against yaws, tuberculosis and conjunctivitis the general health of the natives has improved. Since Feb. 14, 1914, the new training school for native women nurses has been in operation with satisfactory results. On Jan. 10, 1914, the old Board of Health was abolished and replaced by the Department of Health, with the Senior Medical Officer in control. This Department, aside from carrying on quarantine work incident to the outbreak of smallpox in Australia and New Zealand, 3,062 natives being vaccinated during the year, and against the cocoanut beetle from German Samoa, has supervised the water supply, the diseases of animals, and the practical instruction of the natives in sanitary matters.

Finances.—As foreseen in the last issue of the YEAR BOOK (p. 243), the 1913 crop of copra, owing to hurricanes and bad weather, was but little greater than 50 per cent. of the crop of the preceding year. The Governor again, at the request of the natives, handled their copra crop for them and succeeded in selling it at a higher price than was ever paid for copra in the island, $108 per ton.

While the revenues have not decreased, they are not sufficient to support the Samoan Hospital, the public schools, and to construct roads and other necessary public improvements in the island. The natives are very anxious to learn the English language, but, owing to lack of school facilities, but little is accomplished in this direction.

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IX. LAW AND JURISPRUDENCE

FRANCIS M. BURDICK and NATHAN ABBOTT[1]

FOREIGN JURISPRUDENCE

Legislation.—The most important piece of legislation in Belgium during the year was the revision of that part of the Commercial Code relating to commercial associations.[2]

France has found it necessary to amend its code provisions relating to the legal status and rights of natural children, as well as those securing to pregnant women and women recently become mothers exemption from contract duties to labor and financial assistance in certain cases. It has also added an experiment in the way of state assistance to large families, and has increased the safeguards for laborers by new provisions in Art. 159 of the Second Book of the Code of Labor and Social Provisions.

The British *Law Journal*, in the issue of Aug. 29 (xlix, 505), says:

> Whatever may be the case in other countries, the Rule of Law still holds in England, and the maxim *inter arma silent leges* might also be said to be displaced by the flood of new legislation which the war has brought about. . . . The supremacy of law is recognized and the freedom of the lieges is not left entirely to the tender mercies of military and navy departments.

This "flood of new legislation" embraces such statutes as "An Act to enable food, forage and stores for His Majesty's forces to be requisitioned in certain cases" (4 & 5 Geo. V, Ch. 26); Defense of the Realm Act (Ch. 29); Unreasonable Withholding of Food Supplies Act (Ch. 51); Postponement of Payments Act (Ch. 11); and Aliens Restriction Act (Ch. 12). The statute last named is cited by the *Law Journal* as an example of the speed with which the Parliamentary law mill can grind its grist when all parties are agreed upon a bill.

The most important statutes not evoked by war conditions include, first, "An Act to consolidate and amend the laws relating to bankruptcy in Scotland" (3 & 4 Geo. V, Ch. 20), which went into effect on Jan. 1, 1914. This Act has been characterized as a very comprehensive codification of existing Scotch law. It provides for a searching examination of the bankrupt, his wife and family, clerks, servants, factors, law agents and others. A bankrupt is not to be discharged unless a dividend or composition of at least five shillings in the pound has been paid or secured, or the proper officer is satisfied that the bankrupt's failure to pay that percentage is a matter for which he is not responsible. For England and Ireland a similar recodification of the law relating to bankruptcy and deeds of arrangements was effected by Chapter 34 of 3 & 4 Geo. V, which became operative on April 1, 1914. The material changes in existing law are pointed out in the *Journal of the Society of Comparative Legislation*, xxx, 34-37. The second portion of this statute has been modified by the Deeds of Arrangement Act of 1914 (4 & 5 Geo. V, Ch. 47). Parliament attested its appreciation of the esthetic by authorizing the London County Council to acquire lands and make expendi-

[1] The sections on "Foreign Jurisprudence" and "Legislative Tendencies" are by Professor Burdick; the section on "Judicial Decisions" by Professor Abbott.

[2] An extensive summary of this revision is contained in the *Annual Bulletin* of the Comparative Law Bureau of the American Bar Association, July, 1914.

tures for "enhancing the dignity of the approach to the Mall from Charing Cross" (4 & 5 Geo. V, Ch. 28); and its humanitarian interest, possibly its tendency to paternalism, by its amendments to the statutes for the education of defective and epileptic children (Ch. 45); by the Milk and Dairies Act (Ch. 49), a health law with drastic provisions; and by the Housing Act (Ch. 52). The Merchant Shipping Act (Ch. 50) was passed to give effect to the International Convention on the Safety of Life at Sea signed at London on Jan. 20.

Japan shows the effect of democratization by taking from the graduates of state law colleges the privileges formerly secured to them over other law students as candidates for judicial positions.

In Latin America, stringent white-slave acts, pure-food laws, conservation laws and statutes affecting banking corporations are deemed as important as in the United States. Cuba now requires a law degree from the University of Havana or an approved foreign university for the practice of law. Uruguay permits a wife to obtain a divorce upon application therefor, by convincing the judge that she and her husband cannot be reconciled. The Philippine Islands are already rivaling our states in the volume of their output of legislation. It is said that the Public Utilities Act passed at the last session of the legislature is a verbatim copy of one of the "seven sisters" of New Jersey.

Recent legislation in Denmark provides for public assistance to widows in the education of their minor children; regulates the legal relations between illegitimate children and their parents; gives protection to the trademarks of coöperative societies, and subjects the sale of drugs and medicines to careful supervision.

Norway empowers its sanitary council to order the cremation of the bodies of those dying from certain epidemic diseases, and regulates by statute the cremation of other corpses.

Coöperative fishing and old-age pensions are subjects of recent statutes in Sweden.

Judicial Decisions.—The new constitution of China provides for a judiciary to be fashioned upon Occidental models. If the constitution becomes operative, we may expect to see the development of a body of law from judicial decisions. At present the only reported cases are those arising in courts maintained by foreign nations. An example is afforded by the divorce suit of Cavanagh *v.* Warden in the United States Court for China.[1] It was brought to annul a marriage for duress. The defendant claimed that the court had no jurisdiction, but the court held that it had, such jurisdiction being derived from (*a*) various treaties with China, (*b*) various acts of Congress, and (*c*) the inherent powers of a court of chancery.

In France, as in China, divorce actions often involve novel questions of fact and law, as, for example, an action for divorce on the ground of non-consummation, without plaintiff's fault.[2] The Employers' Liability Act of France does not enforce itself, any more than similar legislation in this country and Great Britain, witness Antipoul *v.* Hersent Frères (Cass. Civ., 10 Mai, 1913).

The litigation under the British statutes relating to employers' liability and workmen's compensation is enormous. Some of it is quite petty, as shown by Woodhouse *v.* Midland Railway (49 L. J. 510, July, 1914) which involved a claim for 7s. 10d. and no general principle. At times persons who have received all that the Compensation Act gives them attempt to recover additional damages under Lord Campbell's Act, as in Codling *v.* John Mowlem & Co. (1914, 2 K. B. 61, 49 L. J. 499, 83 L. J. K. B. 445). The volume of this litigation has so increased as to put the Court of Appeal in arrears. This is not surprising, as actions are brought under these statutes not only by employees for compensation but by employers for redemption from periodical payments (Marshall, Sons & Co. *v.* Prince, 49 L. J. 455, July, 1914), or for the cessation of all payments (Gibson & Co. *v.* Wishart, 84 L. J. H. of L. 321, May, 1914; Taylor & Co. *v.* Clark, 49 L. J. 454, July, 1914). In the case last

[1] Decided April 18, 1914, and reported in the *Annual Bulletin* of Comparative Law Bureau, July, 1914, pp. 45-53.

[2] *Ibid.*, p. 57 (M. *v.* M. Cass.—reg., 17 Fev., 1913).

cited the employee had recovered from his injuries, but while recovering had become so obese as to incapacitate him for his former occupation. However, as he had recovered from the injury sustained in the course of his employment, his employer was absolved from making him further compensation. Another statute which is giving the English courts some novel problems is the Minimum Wage Act of 1912 (see Randle *v.* Clay Cross Co., 83 L. J. K. B. 167, July, 1914). The liberal treatment accorded to foreign judgments by English courts is again attested in Robinson *v.* Fenner (83 L. J. K. B. 81, April, 1914). The purchaser of the good will of a business from the assignee for the benefit of creditors cannot prevent the debtor-assignor from soliciting his former customers; such alienation by the assignee is involuntary so far as the debtor-assignor is concerned; he is not the seller of the good-will and is not derogating from any grant of his when he solicits former customers (Green & Sons *v.* Morris, 1914, 1 Ch. 562, 83 L. J. Ch. 559). An interesting question in the law of nuisance is presented in Lyons, Sons & Co. *v.* Gulliver (1914, 1 Ch. 631, 84 L. J. Ch. 281). The daily performance at defendant's theater was so popular that crowds filled the street during considerable parts of the day to buy tickets and seriously obstructed access to plaintiff's store. This was held an actionable nuisance for which defendant was liable. Justice Phillimore's dissenting opinion is worthy of careful perusal. That English courts are disposed to apply the doctrine of Rylands *v.* Fletcher (L. R. 3 H. L. 330) without flinching is shown by Charing Cross Railway Co. *v.* London Hydraulic Power Co. (83 L. J. K. B. 116, 1913, 3 K. B. 442), in which it was held that the defendants were liable for damages done to plaintiff's electric cables by the bursting of water mains which defendants had laid in the streets although they were not negligent in the matter. Having brought a dangerous thing into the street, they were bound at their peril to keep it from doing harm.

Judicial decisions are multiplying in Japan. Some of them rest upon legal principles which are familiar to students of English law. For example, the principal is bound by the acts of an agent which are within the scope of his apparent authority though in excess of his actual authority (No. 2, Taisei 3, 1914). A person is not guilty of the embezzlement of $3,000, who receives and retains that amount from a bank teller who intends to hand him only $300; being entitled to the $300, he can be guilty of embezzling only $2,700 (State *v.* S. Tono, No. 1211, Dec. 23, Taisei 2, 1913). Other decisions present legal doctrines quite novel to us, such as those governing the surrender of the headship of a family (Administration Court, Nov. 8, Taisei 2, 1913), and the judicial abolition of the eldest son's right of succession and inheritance because of the fact that he is an idle vagrant (Tokyo Dist. Court, No. 206, 3. 2. 6).

It is interesting to learn that Latin-American courts, especially those of the Republic of Colombia, are following the example of our courts in guarding the integrity of the constitution and the rights of person and property (*Annual Bulletin* of The Comparative Law Bureau, 1914, p. 101).

LEGISLATIVE TENDENCIES

Volume of Legislation.—The year 1914 was an off year in state legislation as less than a third of the states held legislative sessions. In some instances, however, the legislators who did meet seemed to think it their duty to make a record in the quantity of statutory output. For example, the session laws of New York fill three large tomes, aggregating nearly four thousand pages. It is true that the indices and table of amendments to prior statutes occupy about a third of the space, and that these additions are most commendable as labor-saving devices. But after these pages are deducted the text of new statutes remains an enormous mass. Our state constitutions might well borrow from British parliamentary practice devices for obstructing the restless statutory dabblers who infest our legislatures.

Why should New York's session laws for 1914 contain an elaborate code of 103 pages devoted exclusively to the organization and regulation of the City Court of Albany? Why should not that court and every other city court in the state be organized upon the same model and the practice therein be regulated by court rules rather than by special statutes? Another source of legislative voluminosity in New York is the municipal charter. In the *Session Laws* for 1914 is a charter for the city of Olean, providing for a "commission-managed government," and a wholly different sort of charter for the city of Batavia, the former charter filling 69 and the latter 114 pages of the statute book. If New York leads the van, Rhode Island brings up the rear in the matter of statutory output, with only 217 pages in its volume of session laws; and less than a third of these enactments have title to rank as public laws.

Dynamics of Legislation. — The year's session laws give no evidence of a subsidence in the popular belief that most social and industrial ills can be cured by legislation. We appear to be confident still that we can lift ourselves out of any social quagmire by our legislative boot straps. Not only are states hastening to enact workmen's compensation laws, but they are vying with each other in making them more and more favorable to the workmen (see Ch. 73 L. of Ky., Ch. 800 L. of Md., and Ch. 41 L. of N. Y.). The New York statute on this topic was amended in favor of the employee before it became operative by extending the term "employer" to include the "state and a municipal corporation or other political subdivision thereof." The regulation of the hours and places of labor for minors and women is becoming more general and stringent (see Ch. 72 L. of Ky.; chs. 60, 236, 252 and 253 L. of N. J.; Ch. 331 L. of N. Y.; No. 139 of Porto Rico; and chs. 158 and 339 of Va.). Legislators are showing a keen interest in the welfare of farmers. Maryland has added a Bureau of Immigration to its agricultural department, for "the purpose of securing gratuitously efficient farm help to meet the demands for such labor in the agricultural communities of the state"; this Bureau is also to keep specimens of the farm products of the state and give "ocular demonstration of the quality and variety" of such products (Ch. 429). Provision is also made for encouraging farmers' coöperating demonstration work (Ch. 427). New York has undertaken to aid the farmers and the consumers through the elimination of the middleman by establishing a Department of Foods and Markets; the commissioner of this Department has for his chief function that of "promoting and conserving the interests of producers, and reducing the cost of living to consumers" (Ch. 245). Virginia provides for the education of its citizens in "agricultural and household arts" (Ch. 86), and gives statutory authority to its cities and counties to acquire and maintain farms (Ch. 33). Such farms are to serve a twofold purpose. They are to be used for agricultural demonstration work and also as places of hard labor for criminals. It is not clear from the text of the statute whether Virginia legislators thought that the imposition of a sentence to hard labor on a farm would operate as an effective deterrent to crime, or that labor on a farm would tend to restore physical and spiritual soundness.

Health Legislation.—Statutes for safeguarding the health of laborers or of the community at large continue to increase, both in scope of purpose and minuteness of regulation. The cleansing of milk cans and other receptacles in accordance with legislators' notions of neatness is widely enforced by criminal statutes (Ch. 155 L. of Va.). The proper inspection of food products is another popular topic of legislation (chs. 1-3, 1020 and 1026 of R. I.). The public-health law in New York has been amended by provisions for the suppression of houses of prostitution as nuisances (Ch. 365). Legislative attempts to protect the health of particular classes are found in Kentucky's drastic statute for the punishment of cigarette smoking by children under 18, or by anyone in school buildings where the example may corrupt the young (Ch. 29); in New Jersey's Vocational Diseases Act (Ch. 162); and the statute (Ch. 121) of the same state regu-

lating the employment of persons in compressed air (see XVI, *Labor Legislation*).

Session Laws as Evidence.—No one can read the session laws of a state without discovering abundant evidence of the topics which engross public attention. Some of these may possess only local importance. Witness statutes in Maryland (Ch. 234) and in Porto Rico (No. 21, p. 156) for the inspection of tobacco, another statute in Porto Rico regulating irrigation (No. 128, p. 54), and several acts in Maryland relating to the growth and sale of oysters (chs. 13, 284 and 691). Maryland (Ch. 786) and Rhode Island (Ch. 1058) testify to their tolerance of osteopathy by statutes authorizing and regulating this form of medical practice. In the former of these acts, "osteopathy" is defined as "a system of treatment based on the theory that diseases are chiefly due to deranged mechanism of the bones, nerves, blood vessels and other tissues and can be remedied by manipulations of these parts." Rhode Island legislators define it more briefly as "the treatment by manipulation of diseased or abnormal conditions of the human body." Another inference to be drawn from a state's session laws is that certain kinds of misconduct have become so flagrant within its borders as to demand regulative or repressive legislation. Hence, New Jersey requires collecting agencies to give heavy bonds for the faithful performance of their duties (Ch. 171), and subjects to stringent regulation the business of making small loans on the assignment of wages (Ch. 49). It would appear also that the lien of attorneys on their clients' causes of action was not sufficiently safeguarded in that state (Ch. 201), and that clergymen and nuns had been deprived of preferential rates of transportation by the Public Utilities Statute of 1911, which are now restored (Ch. 163). In New York the misbranding and adulteration of food (Ch. 494), the counterfeiting of trademarks (Ch. 332), and the grading, packing, marking, shipping and sale of apples in a dishonest manner (Ch. 418), must be of frequent occurrence to justify the legislation enacted in the chapters above named. Similar statutes were passed in Rhode Island (chs. 1062 and 1082). An extensive and dangerous use of habit-forming drugs appears to be attested by the addition of an entire article on this topic to the public health law of New York (Ch. 363), a very drastic piece of legislation. We infer that Virginia still believes in the efficacy of a penal statute against profane swearing (Ch. 20), but that it doubts the wisdom, or possibly the constitutionality, of an act for the sterilization of criminals and mental defectives (Ch. 147).

Uniform State Laws.—All of the states, as well as the territories of Alaska, Hawaii, Porto Rico and the Philippines, have adopted the policy of sending commissioners to an annual conference, with a view to securing complete uniformity in the law of the several states and territories upon important topics. The titles of the most noteworthy statutes drafted by these commissioners are as follows, with the number of states which have adopted them: Negotiable Instruments Act, 46 states; Warehouse Receipts Act, 30 states; Bills of Lading Act, 11 states; Sales of Goods Act, 11 states; Certificates of Stock Act, nine states; Divorce Act, three states; Child Labor Act and Family Desertion Act, six states; Probate of Foreign Wills Act, nine states, and Marriage Evasion Act, three states.

At the conference of the commissioners held at Washington in October, four additional acts were approved and will be sent to the various legislatures for action. These are the Uniform Workmen's Compensation Act, the Uniform Cold Storage Act, the Uniform Act relating to the acknowledgment of Deeds and other Instruments, and the Uniform Partnership Act. While many states have adopted workmen's compensation statutes, the draft now sent out by the commissioners is intended as a model. It has been very carefully considered, and its advocates believe that it embodies the best features of existing legislation and is fair to employers as well as to employees. The Partnership Act contains no radical changes in that branch of the law, but is intended to be a piece of true codification of legal principles as these have been announced in the best considered

judicial decisions. At present there is a great diversity of judicial views upon many points of partnership law which ought not to exist and which will cease to exist if this Act is adopted by all of the states.

The president of the conference, in a recent interview describing the work accomplished by the commissioners, emphasized the fact that few have realized the vital work that is being done in correlating the laws throughout the Union and attempting to get a unified system to cover important affairs which can be regulated to advantage under the same general conditions. The work is one that affects not only business and industrial conditions but social relations and domestic affairs. Its growing influence promises to procure more even justice and benefit for people throughout the nation.

JUDICIAL DECISIONS

Basis of Selection.—In dealing with the legal material from which cases have been selected for the purpose of this article it should be said by way of explanation that no reference has been made to cases having to do with procedure and practice chiefly, or to those of purely technical interest to the lawyer. Out of the thousands of cases decided in the period covered by this issue, those have been taken which are of public interest and which have affected the popular mind.

Professional Conduct.—Besides comment on reported decisions, reference should be made to the continued interest of the lawyers of this country in the improvement of the rules of conduct governing the lawyer in his professional life. This awakening of the profession to its ethical duties which began a few years ago has gone on quietly and steadily. Its clearest manifestation is in the creation of a committee of the New York County Lawyers Association empowered, when consulted, to advise inquirers respecting questions of proper professional conduct. This committee acts *ex parte* and bases its opinions on such facts only as are set forth in the question. Questions and answers are published from time to time and cannot fail to exert a wholesome influence. The judges are coöperating with the bar in imposing penalties on attorneys who violate the standard established by the bar associations. A notable decision was given in a New York case. An attorney had been disbarred by the Appellate Division. He applied to the Court of Appeals, which affirmed the order, saying:

> In establishing the standard of conduct to which the Bar must at its peril conform, the Appellate Division has a wide discretion with which we have neither the wish nor the power to interfere. The court below, where conflicting inferences may have been possible, has seen fit, after weighing the evidence, to draw those adverse to the appellant and to the rectitude of his purpose and motives. The appellant would have us say that the conduct which the court below has thus condemned is wholly free from blame. We are asked in effect to serve notice on the Bar that what was done by the appellant may with impunity and honor be done by others. We cannot give that word. (In the matter of *Flannery*, Court of Appeals, Oct. 23, 1914, reported in *N. Y. Law Journal*, Nov. 2, 1914.)

Admission to the Bar.—During the year the bar associations and the faculties of law schools have been laboring to improve the quality of examinations for admission to the bar. These efforts to improve the character and attainments of candidates for the bar and of the bar itself constitute a marked element in the legal history of the year and will show a profound even if subtle effect on the quality of the jurisprudence of the country. (See report of Ezra R. Thayer, chairman of the Committee on Professional Ethics, presented at the meeting of the American Bar Association at Washington, Oct. 20, 1914, and the various papers presented at the meeting on the subject of examinations for admission to the bar.)

Legal Procedure.—It is still obvious that a disproportionate share of the time of the courts and of the space in the reports is taken by cases involving technical questions of evidence, pleading and practice. The bar associations during the year have united in a determination to overcome this defect in the administration of justice. The effect of this work will

not be manifest at once, but its importance justifies reference to it.

Jurisdiction.—Whether justice shall be sought in one court or in another nowadays is usually easy to determine. But novel conditions may raise difficult questions. This is seen in the case of The Crawford Brothers' No. 2 (Dist. Ct. Wash., June, 1914; 215 Fed. 267), in which the question of the jurisdiction of the Admiralty Court over air craft was raised. An aeroplane fell into the waters of Puget Sound. It had been salved by B and repaired by A, who filed a claim in the Admiralty Court. But B intervened and contended that the court had no jurisdiction. The court recognized the likeness of air and water craft, and that the code of the air of the International Juridic Committee on Aviation contained provisions for air craft strikingly like those for water craft, but refused to take jurisdiction of the case.

Municipalities.—The propriety of legislation authorizing municipalities to raise taxes for such public uses as the supply of water, light and heat is well established. A new public use known as a "municipal fuel yard," where fuel may be obtained at cost, has not heretofore been favorably regarded, but in Laughlin *v.* Portland (April 4, 1914; 111 Me. 486) it is held that a statute authorizing cities and towns to create such fuel yards is constitutional. The court referred to the introduction of water, gas, electric lighting, and heat by gas, all of which have been regarded as appropriate subjects of legislation as public uses, and could see no substantial difference between providing heat through pipes in the streets, and wood for heat hauled over the streets. It said: "It seems illogical to hold that a municipality may relieve its citizens from the rigor of cold if it can reach them by pipes or wires placed under or above the highways, but not if it can reach them by teams traveling along the identically same highway." This case is interesting also in that it holds that the opinions of the justices of a state rendered in answer to questions propounded by the House of Representatives as to the constitutionality of a proposed act are not judicial but only advisory.

Eminent Domain and Private Use.—A perplexing question often arises when one person has intentionally built upon or occupied land of another, and the latter seeks redress by mandatory injunction ordering the structure removed or an injunction compelling the wrongdoer to refrain from using plaintiff's property, when it is manifest that the injunction will give the plaintiff little benefit and will cause the defendant great loss. This has led to the introduction of the doctrine of "balancing of injuries" illustrated in McKann *v.* Chasm Power Co. (May, 1914; 211 N. Y. 301). In this case the defendant by its dam caused a rise of water on plaintiff's land which was of little actual value, and the lowering of defendant's dam would have caused defendant great loss and would have injured the public also, as defendant was engaged in supplying electricity. The court said: "If the protection of a legal right would do a plaintiff but comparatively little good and would produce great public or private hardship, equity will withhold its discreet and beneficent hand and remit the plaintiff to his legal rights and remedies." This attitude of the court of equity virtually results in many cases in enabling the strong to appropriate the property of the weak without due process of law, and is not the view of the majority of the courts of equity in this country. A third way is possible, and that is for the legislature to confer the right of eminent domain on those concerns which are engaged in public service. This course has been taken in several of the western states, where it is desirable to take land for mining, logging and irrigation ditches.

Opposite conclusions as to the constitutionality of such statutes have been reached. In State *ex rel* Timber Co. *v.* Superior Court (January, 1914; 77 Wash. 585) the Supreme Court of Washington held that a statute authorizing the owner of land so situated that it was necessary to have an exit over land of another to condemn a way over the neighbor's lands is constitutional as it promotes the public welfare. The opposite view on a similar case was taken by the Oregon Supreme Court in Anderson *v.* Smith-

Powers Logging Co. (March, 1914; 139 Pac. 736).

Constitutional Law: Jurisdiction.—An action was brought by a resident elector and taxpayer of New York City and in his complaint he alleged that the defendants, who constituted the board of elections and custodians of primary records in each of the 62 counties of the State of New York, and also included the Secretary of State, were taking steps preliminary to the nomination and election of delegates to a constitutional convention to revise the constitution of said state, in pursuance of the provisions of Chapter 913 of the Laws of 1913, and asked that they be restrained under Section 1925 of the Code of Civil Procedure to prevent waste of the public funds, or under Section 51 of the General Municipal Law, restraining officers or agents of cities from squandering funds. The Court of Appeals (October, 1914, 212 New York 520) held that it could not enjoin the defendants under either of the provisions which plaintiff relied on. It had no jurisdiction to pass on the constitutionality of the act of 1913, there being no controversy affecting the life, liberty or property of the litigants. Nor could a court at the suit of a citizen, as such, sit in review of the acts of other branches of the government. The jurisdiction to declare an act of the legislature unconstitutional arises only when the life, liberty or property of litigants is the subject of controversy, and a court, as such, at the request of a citizen, as such, has no authority to sit in judgment on or to supervise the acts of other departments of government.

Police Power.—Without undertaking to define the scope of the "police power" its exercise is most often seen in enactments which the legislature conceives will promote the public welfare as regards its health, safety or morals. Among the decisions of the year on this subject several are noteworthy. In Peterson *v.* Widule (June, 1914; 157 Wis. 641) by a divided court the so-called "eugenic marriage law" of Wisconsin is upheld. The provision, although applicable to men and not to women, is not considered class legislation, and the act as a whole is not an unreasonable restriction upon the right of marriage, nor does it impair the right to enjoy life, liberty and the pursuit of happiness.

Statutes have been passed providing for the sterilization of criminals and defectives. In State *v.* Feilen (1912, 70 Wash. 65) such a statute was held to be constitutional and not to impose a cruel and unusual punishment. But in Smith *v.* the Board of Examiners (November, 1913; 85 N. J. Law 46) the Supreme Court of New Jersey has held such a statute unconstitutional, as denying to the limited class of defectives and criminals specified in the act the equal protection of the law, and that the legislation rests upon a principle of selection that bears no relation to the proposed scheme for the artificial betterment of society. And the same result was reached by the Supreme Court of North Carolina, when passing on an ordinance making it unlawful for negroes to live in any street on which a greater number of houses are occupied by white than by colored persons, although there was a similar prohibition as to white people. The court considered that the general results of such segregation as seen in the "Irish pale," the "ghettoes," the segregation of the Jews in Russia, did not justify the policy of the statute.

The city of Zion, in Illinois, passed an ordinance making it unlawful to smoke tobacco in any street or public building within the city limits. It did not appear that the ordinance was to protect property from fire but solely to restrain the practice of smoking. This ordinance was held an unreasonable interference with personal liberty and not warranted by any principle of the police power. (City of Zion *v.* Behrens, February, 1914; 262 Ill. 510.)

By the act of March 4, 1913, Congress provided for the protection of migrating birds in the United States in what is called the Migratory Bird Act (*A. Y. B.*, 1913, p. 487). To an indictment for violating this act defendant demurred and the District Court of Arkansas has upheld the demurrer. The court took the view that wild birds are the property of the state where they happen to be and not of the nation, and that the Federal Government had no authority to legis-

late in the absence of some constitutional provision. Nor can the states act effectively. Nor is the power of Congress to regulate matters under the general police power broad enough to cover this case. (United States *v.* Shauver, May 25, 1914; 214 Fed. Rep. 154.)

The large body of decisions on the validity of regulations of the so-called "billboard nuisance" is well summarized in Horton *v.* Old Colony Bill Posting Co. (June, 1914; 90 Atl. Rep. 822). In this case the Supreme Court of Rhode Island holds such regulation valid and not creating unjust discrimination, but in Abbey Land, etc., Co. *v.* San Mateo Co. (March, 1914; 139 Pac. 1068), where the question was as to the validity of an act to regulate the location of cemeteries and crematories, the Supreme Court of California said that the right "could not be upheld on the ground that they are not pleasing to the eye, or that they are not agreeable subjects of contemplation, or they are sources of annoyance to nervous or superstitious persons, or that they make the vicinity less attractive for a dwelling place."

In 1907 the New York Court of Appeals in the Williams case (189 N. Y. 131) held unconstitutional an act passed in 1903 which prohibited the employment of women in a factory before six in the morning or after nine in the evening. In 1913 another act was passed to the same effect, "in order to protect the health and morals of females employed in factories." This is now held to be within the police power (People *v.* Charles Schweinler Press, July, 1914; 163 Ap. Div. 620). The Appellate Division of the Supreme Court of New York was not unanimous, but Ingraham, P. J., attached great weight to the investigations on the subject since 1903, and felt the statute was well within the police power.

> Entertaining these views, as the result of the scientific investigation of the question and the trend of legislation in the various states of this country and foreign countries, it seems to me that this act has a direct effect upon the wellbeing of women and of the race; was within the police power of the state; violates no provision of either the Federal or state constitution; and our decision is not controlled by People *v.* Williams.

A similar result was reached by the Supreme Court of Oregon, which holds that such legislation can be upheld only as an exercise of the police power[1] (State *v.* Bunting, March, 1914; 139 Pac. 731). The same court also declares it to be lawful for the legislature to create an Industrial Welfare Committee to regulate the minimum wages and maximum hours of labor for women and minors (Stettler *v.* O'Hara, March, 1914; 139 Pac. 743).

Interstate Commerce.—The conflict of authority between the Federal and the state railroad commissions where the state commission has fixed the charge for intrastate traffic has been settled in favor of the former. It would seem that the authority of a state commission over intrastate traffic is now subject to the limitation that, on a finding by the Interstate Commerce Commission that the rates fixed by the state commission unduly prejudice interstate traffic, the latter must modify its order so as not to cause unjust discrimination[2] (Houston, etc., Railway Co. *v.* United States, June, 1914; 34 Sup. Ct. Rep. 833, 234 U. S. 342). In the Intermountain Cases (June, 1914; 34 Sup. Ct. Rep. 986), the Supreme Court held that the amendment of the long-and-short-haul clause of the Act to Regulate Commerce, made by the Act of June 18, 1910, is constitutional, the delegation of legislative power formerly exercised by the carriers to the Interstate Commerce Commission being lawful. (See also XX, *Railroads.*)

Corporations transporting oil in pipes for the public are common carriers. The Interstate Commerce Commission has been given authority to regulate rates for such service when interstate. In United States *v.* Ohio Oil Co. (June, 1914; 34 Sup. Ct. Rep. 956), the question was raised as to the jurisdiction of the Commission,

[1] The same ruling was also made by the Supreme Court of Massachusetts, and affirmed by the Supreme Court of the United States, March, 1914 (232 U. S. 469).

[2] This decision is criticized by W. C. Coleman in 28 *Harvard Law Review* 34.

the oil being the property of the owners of the pipes. It appearing the companies would transport the oil only on condition that the party offering it for transport would sell it to the company, the Court held the companies were virtually public carriers under such conditions, and that the Commission could order them to file schedules of their rates.

Indians.—In an opinion of the Appellate Division of the New York Supreme Court rendered in October and reported in the *New York Law Journal* for Oct. 22, 1914, it was judicially declared that the Montauk tribe of Indians has ceased to exist. The court found that the tribe had dwindled to two or three families of impure Indian blood, and there had ceased to be any distinct tribal life, these survivors having adopted the habits of the general population and become absorbed therein.

Citizenship.—The provisions of the Naturalization Act apply "to aliens being free white persons, and to aliens of African nativity, and to persons of African descent." One Dow, a native of Syria, in Asia, applied for naturalization. He was qualified in all other respects if he was a "white person." In color he was darker than the ordinary European. The court might have applied one of three tests, color, racial or geographical. The first is not practicable. The second is scientific, and involves consideration of color, language, shape of head and texture of the hair; under this test the applicant should have been admitted. The court adopted the third test, and confined the privilege of naturalization to those of European descent. The ground of decision was that the primary naturalization act of 1790 was intended to apply to Europeans. The court expresses the hope that the case will be carried to the Supreme Court. (*In re* Dow, Feb. 18, 1914; 211 Fed. 286. *In re* Dow, April 15, 1914; 213 Fed. 355.)

A woman citizen of California in 1907 married a subject of Great Britain. The husband and wife continued to reside in California. The franchise having been conferred on women, she applied for registration as a voter. She was refused on the ground that on her marriage and by force of the Act of Congress of March 2, 1907, she ceased automatically to be a citizen of the United States, and was disenfranchised. The Supreme Court of California supported this view in Mackenzie *v.* Hare (August, 1913; 165 Cal. 776).

The ambiguous status of one who has been sentenced to life imprisonment and thereby becomes "civilly dead" continues to cause perplexing situations. In Gargan *v.* Sculley (November, 1913; 82 N. Y. Miscl. 667) the Supreme Court of New York held that the wife of a man sentenced to life imprisonment with a possibility of release in 20 years or on parole was entitled to marry. "A person sentenced to life imprisonment is thereafter deemed to be civilly dead; if he be civilly dead, that *ipso facto* dissolves the marital relation if the innocent spouse so elect." In Byers *v.* Sun Savings Bank (February, 1914; 139 Pac. 948) a decision was made by the Oklahoma Supreme Court to the effect that a convict while in confinement under sentence for life might execute a promissory note, although by statute such sentence deprived him of all civil rights. These and similar decisions are of importance as affecting the many prisoners who are or may be paroled.

Right of Women to Hold Office.—It is usually said that under the common law a woman is eligible to hold a purely ministerial office if capable of performing the duties thereof and where the duties do not require judgment or discretion. In the case of a woman who held the office of state librarian in New Mexico, quo warranto proceedings were held to oust her from office. The court reviewed many cases and decided that such an office was one that a woman could hold at common law, being purely ministerial, and calling for the exercise of neither judgment nor discretion. (State *v.* Dr. Armigo, April 20, 1914; 140 Pac. 1123.)

Domestic Relations.—During the year there has been a growing disposition among some of the school officials of New York City to eliminate women teachers who are married. As a result of the litigation, although not directly decided, the Court of Appeals has intimated that a married

woman teacher in New York City who is absent from duty during the birth of her child may be liable to dismissal for neglect of duty, where the period of absence is prolonged. (People *ex rel.* Peixotto *v.* Board of Education, February, 1914; 160 App. Div. 557; September, 1914; 212 N. Y. 463.)

The right of dower does not attach to real estate which a husband has ceased to own before marriage; but if on the eve of a second marriage he makes a gift of real estate to a daughter by a former marriage, without the knowledge of the intended wife, such gift will not impair her dower right (Deke *v.* Huenkemeier, Oct. 28, 1913; 260 Ill. 131). Resting on different and more technical grounds but of interest is a decision of the Supreme Court of Minnesota, that where a husband is vendee under a contract of sale of lands, whereby he has a right in equity to the title and has entered on the land, his wife has dower rights, although the contract provided the vendor could convey to the husband's assignee, regardless of any relation between the husband and others acquiring any interest through him (Wellington *v.* St. Paul, M. & M. Railway, December, 1913; 123 Minn. 222).

A husband is jointly liable with his wife for injuries caused by a dangerous dog, which she permitted to be kept on her premises during his absence and without his knowledge (Messio *v.* Williams, May, 1914; 129 Tenn. 504).

It is now held in most of the states that a wife as well as the husband may sue a person who alienates the affections of the other. As in the previous case the husband may be liable for the wrongful conduct of his wife. If the wife entices a husband to leave his wife she may be liable for her wrongful conduct, but is her husband jointly liable also? In Claxton *v.* Pool (June, 1914; 167 S. W. 623) the Missouri Court of Appeals held that the husband of the offending wife was not liable, as her acts were not in his presence, and inflicted an equal or greater wrong on him.

The use of the automobile has come before the courts in numerous cases. There seems to be a tendency to class the automobile as dangerous *per se* and to hold the husband liable where he has entrusted it to his wife or child. This is seen in a case where a wife in charge of her husband's automobile had ordered his chauffeur to go on an errand, during which he injured the plaintiff. The husband was held liable on the ground that as master he was liable for his servants' acts, although the order was given by the wife. McHarg *v.* Adt, New York, Supreme Court Appellate Division, September, 1914; 163 App. Div. 782.) In Heissenbuttel *v.* Meagher (May, 1914; 162 App. Div. 752) in the First Department of the same court, it was held that defendant was not liable for the negligence of his son, aged 24, who was driving defendant's car for his own pleasure. But the Court of Appeals of Missouri on substantially like facts considered an automobile as dangerous *per se*, and held a father liable on proof of his ownership of the car and that it was used with his consent, although there was no evidence that the son was in any way acting for his father. The Supreme Court of Washington held a mother who owned the automobile liable for the negligence of her son, in taking a servant to a street car, although she was not aware of the use of the machine at the time (Guignon *v.* Campbell, July 22, 1914; 141 Pac. 1031). And the same liability was enforced where defendant's son was operating his car on his father's business (Missell *v.* Hayes, July, 1914; Court of Errors and Appeals of New Jersey, 91 Atl. 322). But where the husband has a car for the mutual pleasure of himself and wife he is not liable for injuries she causes while using it for her own pleasure and not on his business (Tanzer *v.* Read, New York Supreme Court, Appellate Division, February, 1914; 160 App. Div. 584). But in Davis *v.* Liftlefield (April, 1914; 81 S. E. 487) the Supreme Court of South Carolina held that the father was liable when he had bought the car for the pleasure of the family. In this case the son was driving the car for his own pleasure, and the father was held liable not as parent but as master.

By the common law neither spouse could maintain a tort action against the other. In most jurisdictions the

statutes conferring on married women the right to sue for torts against her or her property, have not been held to enable her to sue her husband. But in Brown *v.* Brown (March 5, 1914; 89 Atl. 889) the Supreme Court of Connecticut held that the Married Woman's Act of that state gave a wife authority to maintain an action against her husband for assault and battery, and the same result was reached by the Oklahoma Court in Fieder *v.* Fieder (May 12, 1914; 140 Pac. 1022).

Equity.—The so-called "right of privacy" which gives to the private and law-abiding citizen the power to restrain the unauthorized publication of his pictures and letters or other acts which result in the invasion of his domestic privacy is recognized to some extent. In New York the civil-rights law protects this right to the extent that it confers the right to restrain the use of one's name or portrait for advertising purposes. In the Binns case the plaintiff was the first wireless-telegraph operator to summon help to a ship in collision. The defendant, a motion-picture concern, constructed a scene to represent the collision, employing actors. One of the actors was made up to imitate Binns. The film was exhibited and Binns was able to get the exhibition restrained by force of the civil-rights law, although it was not his own picture that was exhibited. This raises the interesting question as to the right to impersonate living persons on the stage. (Binns *v.* Vitagraph Co., December, 1913, 210 N. Y. 51.)

The Supreme Court, Appellate Division, in commenting on the civil-rights law said (Colyer *v.* Fox Publishing Co., April, 1914; 162 App. Div. 297):

> In every reported decision in which a judgment for damages under this Act was upheld the prohibited use of the name and photograph was clearly for advertising or trade purposes. So far this statute has not been so far extended as to prohibit, under penalty of exemplary damages, a publication in a daily, weekly or periodical paper or magazine of the portrait of an individual.

An effort to apply the doctrines of specific enforcement of contracts was made in the case of O'Reilly *v.* Mitchel (April, 1914; 85 N. Y. Miscl. 176). During his campaign for the office of mayor of New York, the defendant made certain promises. Plaintiff, a taxpayer, sought to enforce one of these promises. The court refused to entertain the plaintiff's bill, and the court intimated the opinion that there is no legal method for compelling public officials to live up to their promises or the promises in the platform upon which they were elected.

Although a court of equity has power to determine the validity of penal statutes and to restrain the enforcement thereof when unconstitutional, or when the direct result would cause irreparable injury to property, the application of this principle is difficult. It is not easy to say that the court is not asked to restrain criminal proceedings, which it will not do under the guise of a claim that substantial injury to property is involved. And on the other hand, the court in declaring a statute unconstitutional is in danger of passing the bounds established between legislative and judicial functions. In Milton Dairy Co. *v.* Great Northern Railway Co. (January, 1914; 124 Minn. 239) the plaintiff was a creamery company and asked that defendant be enjoined from complying with a statute regulating the shipment of cream more than 65 miles except in refrigerator cars and after complying with certain sanitary conditions, and that the attorney-general of the state be enjoined from enforcing the penalties for violation of the statute. The court held that plaintiff's property would be remotely affected and that it would not enjoin the prosecution of criminal proceedings.

Monopolies.—Unsuccessful attempts have been made by book publishers to restrict the future sale of their books except at a certain price. But such restrictions on patented articles have been held valid. In the "Sanatogen case" the United States Supreme Court has held that the patentee of a medicine may not limit the price at which it is resold (May, 1913; 229 U. S. 1). And in Fisher Mills Co. *v.* Swanson (December, 1913; 76 Wash. 649) it was held that a flour manufacturer's contract fixing the retailer's sale prices was valid, the amount of

flour concerned being small relatively to the entire stock in the community. Sometimes, as in Arkansas, a statute makes penal any combinations to fix "the price of any commodity, convenience, repair or any article whatever." It appeared that certain launderers combined to fix the price of work and agreed to charge customers from Malvern less than customers from Little Rock, where the laundries were established. The Superior Court of Arkansas held in State *v.* Frank (July, 1914; 169 S. W. 333) that "washing and ironing" is mere personal service and a term not included in the statute.

In the International Harvester Co. case (Dist. Ct. Minn., August, 1914; 214 Fed. 987) it was held that a corporation made up of six formerly independent and competing concerns was a monopoly, although no acts monopolistic in their nature had been proved and it had been fair in its dealings. The fact that it was organized to, and was inherently and potentially capable of, stifling competition, rendered it an illegal combination under the Sherman Act. A judgment of ouster from the state of Missouri against the International Harvester Co. was obtained in November, 1911 (237 Mo. 369) because the company was a combination violating the Missouri anti-trust acts. On appeal the Supreme Court of the United States has held that the interpretation put on this act by the Missouri court is correct. The act applied only to combinations of manufacturers and vendors and exempted combinations of wage earners. This was held not to be class legislation. (International Harvester Co. *v.* Missouri, June, 1914; 34 Sup. Ct. Rep. 854.)

Carriers.—Plaintiff boarded one of defendant's sleeping cars, a porter carrying his bag which was placed beside his berth. Before going to bed, plaintiff took the bag to the washroom, and on returning put it again beside his berth and went to sleep. In the morning his bag was gone. The New York Supreme Court, Appellate Division, held the company liable. It admitted that sleeping-car companies do not have the absolute liability of innkeepers and common carriers, but they are liable if negligent, and the court considered the facts above showed a *prima facie* case of negligence. This seems reasonable, as the evidence of what may have been the cause of plaintiff's loss is more within defendant's than plaintiff's control.

Contracts.—A court is reluctant to help a party who has violated some rule of public policy. Just where the boundary is between mere impropriety as a matter of etiquette or morals and invalidity under the rules of public policy is not easy to determine. Probably both of the following cases are properly decided. In Barry *v.* Mulhall (May, 1914; 162 App. Div. 749) the defendant while occupying a place of confidence came into the possession of 5,000 letters tending to show that his employer had made improper attempts to influence legislation. Plaintiff effected a sale of these letters to a newspaper for $10,000, defendant having agreed to pay him one-half the proceeds if he made a sale. The court refused to help plaintiff in his suit to recover this half. The defendant had violated his duty toward his employer and plaintiff was tainted. In Stertan *v.* Blithen (March, 1914; 139 Pac. 618) it appears that the defendant desired the recall of certain municipal officers, and to that end employed plaintiff to labor to accomplish that result, agreeing to pay his expenses, the plaintiff not to disclose defendant's connection with the project. The Supreme Court of Washington held that this contract was like a secret contract to influence legislation or the removal of legislators, and would not aid plaintiff in recovering his expenses. It is obvious that such contracts if valid would afford private influences with unlimited means a weapon for covert attack on public officials.

Does the Keeper of an Inn or Restaurant Sell Food?—This question has been answered in the negative by the Supreme Court of Connecticut in a carefully reasoned opinion (Merrill *v.* Hodson, 88 Conn. 314; 91 Atl. 533; July, 1914). Plaintiff ordered "creamed sweetbreads" from defendant's restaurant bill of fare, and was made sick from eating them because they were unwholesome. If the transaction was a sale, a provision of the Uniform Sales Act of Connecticut applied and subjected the defendant to

the liability of warrantor of fitness of the dish for food. If it was not a sale, the defendant was liable only in tort for negligence in failing to discover the unfitness. Said the court:

> What the customer pays for is a right to satisfy his appetite by the process of destruction. What he pays for includes more than the price of food as such. It includes all that enters into the conception of service. It does not contemplate the transfer of the general property in food supplied as a factor in the service rendered.

An Appellate Division of the New York Supreme Court has held a similar transaction to be a sale (Leahy *v.* Essex Co., July, 1914; 148 N. Y. Supp. 1063, following Race *v.* Roum, 146 *id.* 197, 147 *id.* 818). The opinion, however, is very brief in the later case, and in the earlier case, the defendant admitted that he impliedly warranted the fitness of the food and contested only the allegation that it was unfit. If such a transaction is a sale, it would follow that if A should order a meal for himself and a guest, and both were poisoned by unfit food, A would have the option of suing either for negligence or for breach of the contract of warranty; while the guest would be limited to an action for negligence.

Torts.—Untruthfully to charge one in writing with being illegitimate is libelous *per se*. But if the libeler dies before action is brought, the cause of action also dies with him. Suppose the libel is in a will. There the publication of the libel which is necessary to the completed tort is not consummated until the testator's death. Hence it may be said there was no cause of action until after his death, and so should not be abated by his death. On the above facts it was held in Harris *v.* Nashville Trust Co. (January, 1914; 162 S. W. 584) by the Supreme Court of Tennessee that an action would lie against the executor of the will as such.

A by-product of the Colorado labor trouble (see I, *American History*), is the decision in the case of Upton Sinclair, who was found guilty of "threatening, abusive and insulting behavior with intent to provoke a breach of the peace." Sinclair arranged with others to walk in line, all wearing crepe, opposite 26 Broadway, New York, where John D. Rockefeller, Jr., had his office. The court held that his conduct should be considered in relation to his public remarks prior to the parade and the effect on the public, and that although the component parts of his conduct may be lawful, yet in the aggregate may be unlawful, and affirmed his conviction in the lower court. (People *v.* Sinclair, July 9, 1914; 149 N. Y. Supp. 54.)

Christian Science and Religious Liberty.—How difficult it may be to apply a law to the facts is seen in the case of People *v.* Cole (July, 1914; 163 App. Div. 292). A public health law of New York requires that one who practices medicine shall have a certain license, and that one practices medicine who holds himself out as able to treat and who shall undertake by any means to treat human disease. The law also provided that it should not apply to those who practiced "the religious tenets of any church." Defendant was held to have violated this law, although as a Christian Scientist he disavowed to his patients any personal ability to heal and affirmed that God alone could cure, it further appearing that his office was disconnected with any place of worship and that his practice yielded him $5,000 or $6,000 per year.

Extradition.—The Thaw case continues to vex the courts. The Federal District Court in New Hampshire held Thaw entitled to a writ of habeas corpus, on the ground that he had been found insane and had escaped from confinement, which escape was not an extraditable offense, as that involves a responsible person and a crime, which his flight from guardianship custody was not (*Ex parte* Thaw, April, 1914; 214 Fed. 423). This ruling was reversed by the U. S. Supreme Court on Dec. 21.

Workmen's Compensation Acts.—Although these statutes were drafted with a view to relieving the injured servant from the uncertainties of litigation, they have failed to accomplish this purpose. One has only to open the latest volume of *Negligence and Compensation Cases Annotated* (vol. v) to discover that these statutes have opened a new flood of litigation. Not only has the constitutionality of each

statute been attacked upon a variety of grounds, but the question has been raised whether the injured employee came within the class of persons for whose benefit the particular act was passed (*in re* Howard, Mass., 105 N. E. 449, 5 N. C. C. A. 449, June, 1914; *in re* Sundine, 218 Mass., 1, 105 N. E. 433, 5 N. C. C. A. 616, May, 1914; Agler *v.* Michigan Agricultural College, 148 N. W. 341, 5 N. C. C. A. 897, July, 1914; Wendt *v.* Industrial Insurance Commission, Wash., 141 Pac. 311, 5 N. C. C. A. 790, June, 1914). Also whether the harm sustained by the servant was an injury arising out of and in the course of his employment, as where the servant whose eye had caught particles of steel rubbed the eye with his hand infected with gonorrheal germs and thus infected the eye (McCoy *v.* Michigan Screw Co., 147 N. W. 572, 5 N. C. C. A. 455, June, 1914). A still broader question has been raised whether compensation acts should be held to cover only accidental injuries, or whether they should be construed broadly enough to include all occupational diseases. The latter construction has been put upon the Massachusetts and Michigan statutes and is supported by the American Association for Labor Legislation (see *Announcement* of Sept. 1, 1914, p. 8). It is criticized and the Massachusetts and Michigan cases carefully discussed by F. H. Bohlen in 14 *Columbia Law Review* 563 (November, 1914). How numerous are the contested questions which may be raised in a single case can be seen by consulting International Harvester Co. *v.* Industrial Commission (157 Wis. 167, 147 N. W. 53, 5 N. C. C. A. 822, May, 1914). Another Wisconsin case discloses the necessity of giving to the courts some sort of appellate jurisdiction of the administration boards provided by most of the compensation acts (Milwaukee *v.* Miller, 154 Wis. 652, 144 N. W. 188, October, 1913). An employee in the course of his service received an injury to a great toe, for which the statute authorized a disability indemnity of $172.50. Not content with this, the employee claimed and was allowed by the administration board, the additional sum of $222 for physician's services, $32 for services of a nurse and $5 for bandages and supplies. The Supreme Court, however, denied the claim of $222 for physician's services as shockingly unfair, also the nurse's bill of $32 as wholly unnecessary and allowed the $5 for supplies. In the opinion of the court, such awards by the administration board tended to bring a well-intended statute into a disrepute that would lead to its repeal.

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Fortescue, Sir C.—*Methods of Land Transfer.* (London, Stevens & Sons, 1914.)—A clear and comprehensive treatment of the system in the British Dominion, on the Continent, and in the United States.

Haines, C. G.—*The American Doctrine of Judicial Supremacy.* (New York, Macmillan, 1914.)—Presents in brief compass the history, scope and results of judicial control over legislation in the United States.

von Ihring, Rudolph.—*Law as a Means to an End.* (Boston, Boston Book Co., 1913).—Translated by Isaac Husik. The main purpose of this most valuable book, as indicated in the title, is to show that the law exists for practical purposes and not merely for its own sake.

Ilbert, Sir C.—*Mechanics of Law Making.* (London, Oxford University Press; New York, Columbia University Press, 1914.)—Gives the views and experiences of a practical Parliamentary draftsman, and makes comparisons between the practices in legislative bodies of this country.

Judson, F. N.—*The Judiciary and the People.* (New Haven, Yale University Press, 1913.)—These are lectures to the law students of Yale. There is a discussion of the independence of the judiciary, judicial review of legislation, and recall of judges.

Kales, A. M.—*Unpopular Government in the United States.* (Chicago University Press, 1914.)—An examina-

tion and criticism of popular election of judicial and executive officers from the practical standpoint, together with a criticism of the initiative, referendum and recall.

LAIDLER, H. W.—*Boycotts and the Labor Struggle: Economic and Legal Aspects.* (New York, John Lane Co., 1914.)—A collection and study of state and Federal legislation and judicial decisions with judicial and economic reasons for and against the boycott.

TAFT, W. H.—*The Anti-Trust Act and the Supreme Court.* (New York, Harpers, 1914.)—A compact account of the interpretation of the United States Supreme Court of the Anti-Trust Act of 1890 from the Sugar Trust Case in 1895 to the Standard Oil and Tobacco Trust Cases of 1912. The "rule of reason" is discussed.

CRIMINAL LAW

EDWIN R. KEEDY

Legislative and Judicial Tendencies.—During the year the legislatures have continued their efforts to regulate business and to improve social conditions by the enactment of laws to protect the health, safety and morals of the community. Increased attention has been given to the study of the criminal, both before and after conviction (see XV, *Criminology and Penology*). The courts are showing less regard for "technical error" and more for "substantial rights," and there is a growing movement throughout the whole country to simplify and expedite procedure (see also *supra*).

Regulation and Protection of Business.—The new Federal Anti-Trust Act provides that every official guilty of embezzling funds from a common carrier shall be fined not less than $500, or shall serve not less than one year nor more than ten years in the penitentiary (sec. 9). After two years from the date of the passing of the act, no common carrier or official thereof shall have any business dealing to the "amount of more than $50,000 in the aggregate, in any one year," with another firm or corporation, if the two parties to such dealing have certain officials, or any interests, in common, unless such dealing be with the party making the most favorable bid to the carrier; any violation of such provision is punishable by a fine of $25,000 for the offending carrier and a fine of not exceeding $5,000, or a year in jail, or both, for each official concerned (sec. 10). This latter penalty is also imposed upon every official involved, whenever the corporation violates any of the penal clauses of the act (sec. 14).

The following states have made it a misdemeanor to utter a check without funds to meet it: Georgia (86[1]), Kentucky (29), Maryland (420), South Carolina (489). It is a felony in Kentucky to make false statements for the purpose of gaining credit (59). In Mississippi (132) it is a felony, and in New York (1540) a misdemeanor, for banks, knowing themselves insolvent, to accept deposits; in Massachusetts the penalty is fine or imprisonment (493). A Mississippi act makes it a misdemeanor to form interlocking directorates (139) and to contribute to campaign funds of candidates for bank examiner (141). It also penalizes the officials who make misleading statements regarding the bank's credit (115).

Child Labor.—A Georgia law makes it a misdemeanor to employ any child under 14 years in any mill, factory, laundry, manufacturing establishment or place of amusement, excepting only children who must support themselves or widowed mothers, in which event they may be employed if over 12 years of age (88-92). In Mississippi, a similar act is entitled "An act prohibiting boys under 12 and girls under 14 from working in any cotton mill or knitting mill" (212). (See also XVI, *Labor Legislation.*)

Conditions of Adult Labor.—Maryland enacted a law regulating conditions in workshops and factories, and specifying certain limitations for "sweatshop" labor, any violation being punished by fine (1366). In Mississippi (212) it is made a misdemeanor to employ any person more than ten hours a day in cotton or knitting mills. A Massachusetts act

[1] Figures in parentheses following the name of a state refer to the pages of the session laws of 1914.

punishes by fine any violation of a provision limiting the hours of labor of certain railroad employees to nine working hours (856). (See also XVI, *Labor Legislation.*)

Prostitution. — In Massachusetts (588) and New York (1126), a house of prostitution has been declared a nuisance which may be enjoined by the state. Under a Massachusetts statute (586) any person who derives support from the earnings of a prostitute is liable to fine or imprisonment. The United States circuit court, in interpreting the Federal White Slave Act, declares that the term "prostitution" as therein used means commercial vice only; but the words "other immoral purpose," also used, are held not to be so limited but are extended to any sexual debauchery (Johnson *v.* United States, 215 Fed. 679).

Sterilization.—The Iowa statute of 1913 authorizing the sterilization of idiots, feeble-minded persons, drunkards, drug-fiends, epileptics, syphilitics, moral and sexual perverts, and mandatory as to criminals who have been twice convicted of felony, has been declared unconstitutional, on the ground that the operation proposed to be performed, in its effects, amounted to cruel and unusual punishment (Davis *v.* Barry, Dist. Ct. Iowa, June 24; reported in *Jour. Crim. Law and Criminology,* v, 419). A comprehensive note on this subject, reviewing the cases of the last few years, is published in the *Michigan Law Review* (xii, 400). A committee of the American Institute of Criminal Law and Criminology reports that there has been as yet no thoroughly scientific and intensive research to determine the consequences of sterilization both to the individual and to the community, in the cases where the operation was performed. The investigation of this matter is urged by the committee before further legislation on the subject is enacted. (See also XV, *Social and Mental Hygiene,* and *Criminology and Penology.*)

Protection of Health, Safety and Morals.—It is a misdemeanor in Mississippi (105) and in Ohio (249) to fail to register motor vehicles according to law. A Maryland statute (78) provides for the prosecution of any person who sells or sends up any toy balloon dangerous to life or property; in New York (1119) the placing of explosives so as to endanger life or property is a felony. Kentucky (104) and Maryland (1610) have enacted statutes providing for the prosecution of any person selling cigarettes to minors. A Massachusetts act regulates all dairies and imposes a fine for violations (855). In each of two Colorado acts it is made a misdemeanor, when a proclamation of riot is in force, (1) to purchase, use or sell any firearm or ammunition without a permit (extra sess., 4), or (2) to purchase, use or sell any intoxicating liquor (extra sess., 12). The Kentucky legislature has enacted a law "prohibiting the shipment of liquors for sale in local option territory and prohibiting persons from having in possession for sale liquors in such territory" (25). A new Mississippi law (143) regulates "the shipment of intoxicating liquor into or within the state." A Maryland statute forbids women soliciting money when operating street pianos (208). In Mississippi, the age of consent is raised to 18 years (219). An act passed in California prohibits prize fighting. In Oregon the death penalty was abolished by referendum vote.

Criminal Insane.—The Virginia legislature passed the following statute (542):

> If, prior to the time for trial of any persons under complaint of indictment for any crime, either the court or the attorney for the commonwealth has reason to believe that such person is in such mental condition that his confinement in a hospital for the insane is necessary for proper care and observation, the said court may commit such person to the department for the criminal insane under such limitations as it may order pending the determination of his mental condition; and in such case the court, in its discretion, may appoint one or more experts in insanity, or other qualified physicians, not to exceed three, to examine the defendant before such commitment is ordered, and make such investigation of the case as they may deem necessary, and report to the court the condition of the defendant at the time of their examination.

The proposal of the New York State Bar Association, that where a criminal act was done by a person while

insane the jury should find a verdict of "guilty, but insane," and that the person so convicted should be committed to the state asylum for the insane for the same length of time he would have been sentenced to the penitentiary if sane, was enacted by the legislature but was vetoed by the governor. The American Institute of Criminal Law and Criminology, at its meeting in Washington, on Oct. 22, adopted the recommendation of a committee providing that in the trial of cases where mental disease or derangement is an issue in the case, the court may appoint disinterested experts to examine the person in question and present a written report of such person's mental condition at the trial. (See also XV, *Criminology and Penology.*)

Decisions.—From the great mass of decisions on criminal-law questions during the year it is possible to select several that are of more than ordinary interest. The conviction of a corporation for obtaining property by false pretenses was upheld by the Supreme Court of North Carolina (State *v.* Ice and Fuel Co., 81 S. E. 737). The question whether the fact that an accused person was trailed by bloodhounds from the scene of a crime is admissible in evidence against him, was discussed in two cases. In Illinois it was decided that such fact was inadmissible where the person trailed was unknown at the time the dogs were put on his scent (People *v.* Pfannschmidt, 104 N. E. 804). The Supreme Court of Mississippi decided that the fact of such trailing was admissible, but that without corroboration it was insufficient to establish guilt (Carter *v.* State, 64 So. 215). The publisher of Goodman's *Hagar Revelly*, indicted on a charge of sending obscene matter through the mails, was acquitted by the jury, notwithstanding the instructions of the trial judge, that "the test of obscenity is whether the tendency of the matter charged as obscene is to corrupt the morals of those whose minds are open to such immoral influences." The judge who decided that the indictment was sufficient, while acknowledging that the rule stated above is now the law, questions "whether in the end men will regard that as obscene which is honestly relevant to the adequate expression of innocent ideas" (United States *v.* Kennerly, 209 Fed. 119).

Procedure. — Several notable instances of refusals on the part of courts of review to set aside convictions because of unsubstantial error committed at the trial have recently occurred. The Supreme Court of the United States decided that the failure to arraign the defendant and to require him to plead, where the trial proceeded as though a plea of not guilty had been entered, was not a violation of the "due process of law" clause of the Federal Constitution (Garland *v.* State of Washington, 34 Sup. Ct. Rep. 456). A similar omission was held not ground for reversing a judgment of conviction in Missouri (State *v.* O'Kelley, 167 S. W. 980). The failure on the part of the trial judge to ask a person convicted of murder whether he had anything to say before sentence of death was pronounced was held not to be reversible error (Dutton *v.* Maryland, 91 Atl. 451). The fact that an indictment charges an offense to have been committed on an impossible day is not a fatal objection to a conviction (Boos *v.* Indiana, 105 N. E. 117).

The American Institute of Criminal Law and Criminology at its meeting in Washington on Oct. 22 approved the report of a committee which presented a bill for the simplification of indictments. The most important section of the proposed bill is as follows:

> Every indictment is valid which indicates the offense for which the accused is being prosecuted in one or more of the following ways:
>
> (1.) The indictment may indicate the offense by using the specific name given to the offense by the common law or by a statute.
>
> (2.) The indictment may indicate the offense by stating so much of the definition of the offense either in terms of common law or of the statute defining the offense or in terms of substantially the same meaning as is sufficient to give the court notice of what offense is intended.
>
> Every indictment which indicates an offense in one or more of the above ways shall be considered to allege that every condition required by law to constitute the offense indicated was fulfilled in the particular case.

X. PUBLIC RESOURCES AND PUBLIC WORKS

PUBLIC LANDS

MORRIS BIEN

Phosphate and Oil Lands.—On July 17 Congress passed an Act providing that lands which have been withdrawn or classified as containing phosphate, nitrate, potash, oil, gas or asphaltic minerals or which are valuable for such deposits shall be subject to the general land laws regarding entry, purchase, etc., with a reservation to the United States of such deposits together with the right to prospect for, mine and remove them. This legislation makes available for settlement and entry for agricultural purposes a considerable area which has heretofore been reserved because of these mineral deposits. This solution of the question is in line with that first adopted in 1910 in regard to coal lands, by which the surface of the land could be taken for agricultural and general settlement purposes, leaving the United States to deal with the valuable mineral deposits by other means.

Reclamation Extension Act.—On Aug. 13 Congress passed an Act providing for an extension of 20 years in the time required for payments by entrymen and water-right applicants under the large irrigation projects established under the Reclamation Act. The details of this Act are discussed elsewhere (see *Reclamation, infra*).

Second Homestead and Desert-Land Entries.—On Sept. 5 Congress passed an Act providing that any person who has heretofore or may hereafter make entry under the homestead or desert-land laws and who through no fault of his own may have lost, forfeited or abandoned the same, shall be entitled to the benefits of the homestead or desert-land laws as though such former entry had never been made. The applicant is required to show that his former entry was made in good faith, that it was lost because of matters beyond his control, and that he has not speculated in his right of entry nor committed fraud in connection with such prior entry.

This Act is one of a series of similar import that have been passed from time to time to correct the injustice arising in some cases from the statutory limitation to a single entry of this kind. Heretofore Congress has not been willing to make the Act applicable to future entries but insisted that it should apply only to entries made prior to the date of the Act. The present law applies to future cases so that remedial legislation of this kind will not be required in the future.

Country Parks, Public Playgrounds, and Community Centers.—On Oct. 5 Congress passed an Act to authorize the reservation of public lands for country parks, public playgrounds and community centers for the use of residents on reclamation projects established under the Reclamation Act of June 17, 1902. This legislation is in recognition of the growing sentiment toward encouraging the consolidation of the farming communities established on these reclamation projects, in which the prevailing conditions tend strongly toward coöperative effort. It authorizes the Secretary of the Interior to set apart for the purposes specified above not exceeding 20 acres in any one township of six miles square. The Secretary is authorized to enter into contract with organizations formed by the landowners for the maintenance and

use of these lands, and the Act provides that water service for irrigation purposes may be furnished without special charge, the cost being borne by all the water-users. This legislation applies only to lands in reclamation projects, but if it works successfully, as it seems likely to do, Congress will doubtless apply this system more extensively.

Alaska Coal Lands.—On Oct. 20 Congress passed the Act providing for the leasing of coal lands in the territory of Alaska. This legislation makes available a very large area of coal-bearing lands which for the last eight years has been withheld from use pending the time that Congress would settle upon a plan of disposition. The leasing of these lands is committed to the discretion of the Secretary of the Interior in areas of from 40 to 2,560 acres upon competitive bidding in most cases. The Act provides that the Secretary of the Interior shall fix a minimum royalty of not less than two cents per ton, and a minimum rental for the land of not less than 25 cents per acre for the first year, not less than 50 cents per acre for each of the next four years, and not less than one dollar per acre per annum after the fifth year. The lease may run for not more than 50 years, subject to renewal, as authorized by law at the time of such renewal. The Act contains provisions to prevent combinations among those holding leases with a view to monopolizing the market. It also provides that railroads or other common carriers shall not be permitted to acquire through lease or permit any coal or coal lands in excess of what may be needed solely for their own use. The Act provides further for the reservation of certain coal-bearing areas for use by the Government for the operation of government railroads, for the Navy, or when necessary for national protection, or for relief from oppressive conditions brought about through the monopoly of coal. (See also I, *American History.*)

General Leasing of Coal Lands.—Congress had before it a bill providing for the leasing of coal lands on the public domain outside of Alaska. A great deal of attention was paid to it during the session but no conclusion was reached.

Unqualified Patents for Lands Withdrawn as Coal Lands.—On April 14 Congress passed an Act to correct an injustice that had been done to a number of entrymen who had received patent limiting them to surface rights for lands which at the time of patent had been withdrawn as possibly containing coal and which lands were afterwards determined not to contain coal and were released from the withdrawal. The Act provides that in such cases new patents may issue giving the entryman full rights in the land.

Vacant Public Lands.—The following table shows approximately the areas of lands in the several states owned by the United States on July 1, 1914, which are not reserved and of which about one-fourth are surveyed and available for settlement and entry·

	Area, Acres
Alabama	51,920
Alaska	367,900,000
Arizona	36,958,749
Arkansas	368,972
California	20,902,752
Colorado	18,899,441
Florida	307,924
Idaho	16,342,781
Kansas	102,200
Louisiana	123,045
Michigan	79,316
Minnesota	1,082,199
Mississippi	46,793
Missouri	1,061
Montana	22,237,660
Nebraska	270,162
Nevada	55,502,439
New Mexico	30,104,843
North Dakota	672,949
Oklahoma	42,353
Oregon	15,969,846
South Dakota	3,573,269
Utah	33,756,502
Washington	1,799,774
Wisconsin	8,760
Wyoming	31,553,423
Total	658,659,133

In the YEAR BOOK for 1910 (p. 302) a similar table was given showing the conditions on July 1, 1910. A comparison of these tables shows that in the four years intervening the United States has disposed of 53,327,276 acres. It is interesting to note that in the four years from 1906 to 1910 the area disposed of was 80,252,298 acres.

Disposition of Public Lands.—The total area of public lands entered during the year ending June 30, 1914,

was 16,522,852 acres, an increase of about 655,629 acres as compared with the area entered during the preceding year. The total cash receipts from the sale of public lands during that year were $4,256,102.96; from the sale of Indian lands there were received in addition $1,844,802.77. These figures represent a decrease of about $305,104.28 as compared with the receipts for the preceding fiscal year. The area of lands patented during the year was 14,391,071 acres, an increase over the preceding year of 1,712,995 acres. Of the area patented 10,000,635 acres were taken under the homestead law, an increase over the preceding year of 2,680,577 acres.

Marriage of Homestead Applicants.—On April 6 Congress passed an Act providing that where a man and woman had independently made homestead entries and afterwards married, they might retain both entries and that residence on the lands included in one of the entries by the husband and wife shall constitute a compliance with the residence requirements for each entry. This law abolishes a previous ruling of the Department of the Interior to the effect that where a man and woman who had each made entry were afterwards married they were obliged to give up one of the entries because under the law an entryman was required to live upon his land and could not have a residence apart from his family. The effect of this statute will doubtless be to encourage matrimony among people who have made homestead entries.

MINERAL RESOURCES

U. S. GEOLOGICAL SURVEY

GEORGE OTIS SMITH

Activities of the Year.—All lines of work of the United States Geological Survey have been carried forward during the year. Geologic investigations have been pushed in the coal, oil and phosphate fields and in mining camps in the West. Water-resource work and topographic mapping have been prosecuted in various parts of the country. The scope of the Survey's field activities is shown by the fact that geologic surveys, both detailed and reconnaissance, covered 70,000 sq. miles in 47 states, Alaska, Hawaii and the Canal Zone, and topographic surveys covered 29,000 sq. miles in 24 states, Alaska and Hawaii, while stream-gauging was carried on at 1,400 stations in 39 states, Alaska and Hawaii. The aggregate area covered by all these surveys exceeds the combined areas of Belgium, the Netherlands, Denmark, Switzerland and Greece.

Public Land Classification.—The public-land classification was on an equally large scale and involved the classification of some 47,000,000 acres of coal, oil, phosphate and other lands, an area twice the size of the state of Indiana. Under this heading are included such items as the classification for restoration to entry of 9,250,000 acres of land which had previously been withdrawn for coal classification, of which 1,300,000 acres were appraised and made available for purchase at prices determined by the quantity and quality of coal. In the examination of withdrawn phosphate lands, approximately 1,700,000 acres were covered during the year. Another item in classification work was the examination of nearly 2,500,000 acres of lands in the various Indian reservations, incident to the proper disposition of the Indian lands. The work included withdrawals of 209,488 acres of oil lands and restorations of 187,867 acres, examination showing the latter to be non-oil. In the phosphate fields 169,885 acres were withdrawn and 258,909 restored. In the exploratory work in the search for potash, 92,160 acres of lands were withdrawn and 320 acres restored. Under water-power site reserves, 183,612 acres were withdrawn and 90,400 acres previously included were restored to the public domain. Stream-profile surveys covered 791 miles.

The largest item in the classification work was the designation under the Enlarged Homestead Act of non-irrigable lands for entry in 320-acre homesteads. These designations were largely made in response to petitions of prospective entrymen and aggregated 33,102,289 acres in 12 states.

Mineral Resources of the United States.—One result of the European War was to draw attention almost immediately to the mineral reserves of the United States. Shortly after the outbreak of the conflict the Geological Survey published (*Bull.* 599) a brief report discussing the principal resources which are the foundation of the mineral industry, many of which the United States has imported in greater or less degree and largely from European countries. Except as to four or five minerals, the United States is seen to be absolutely independent, although certain of our deposits are comparatively undeveloped owing to the fact that it has been a little easier and cheaper to import foreign materials. In many other cases, however, the United States leads the world. Thus, not only in production but in reserves of coal, oil, iron, phosphate rock, copper, sulphur and radium ore the United States is supreme; it can both supply its own needs and it has ample material for export, while the only essential minerals of the first rank in which this country has no known supply at all commensurate with its need are nitrates, potash salts, tin, nickel and platinum. In such minerals as manganese, arsenic, barytes, and magnesite, while we have been heavy importers, we yet have ample domestic deposits which will now doubtless be quickly developed to meet the demand due to the shutting off of the foreign supply. The wide newspaper publicity accorded to the authentic information contained in the Survey's report and the statements issued regarding American mineral reserves have resulted in a heavy correspondence and have given the Survey opportunity in thousands of cases to put the user of certain materials in touch with a present or prospective producer. Letters are received in the same mail from a producer of magnesite stating that he is looking for a market for his product and from a manufacturer inquiring where he can obtain American magnesite. The Survey is now acting as a clearing house of information in this respect. Never before has its work in mineral statistics, necessitating close touch with the 90,000 mineral producers and mine operators, whose production is $2,500,000,000 annually, more amply justified itself.

Publications.—Another index of the work of the Geological Survey is afforded by its publications. During the year there were published and distributed more than a million copies of reports and geologic and topographic maps. Nearly 350,000 of these maps were sold to the public. The Survey carries as a regular stock about 2,300 different maps. The topographic maps now cover 40 per cent. of the area of the United States. One of the notable publications of the year has been the petroleum map. This is a large wall map showing the petroleum resources and natural-gas deposits of the United States and also the thousands of miles of trunk oil pipe line. It shows by colors the areas underlain by known oil and gas pools as well as general oil and gas localities. The map is 49 by 76 in., printed in five colors.

Appropriations.—Congress has granted the Geological Survey a much needed increase of $100,000 for the more extended prosecution of geologic surveys, and also appropriated $40,000 for the preparation of plans for the new $2,500,000 building for the Geological Survey and other bureaus of the Department of the Interior which was authorized by a previous Congress.

STATE GEOLOGICAL SURVEYS

FRANK W. DEWOLF

Activities and Resources.—Thirty-three states maintained active geological surveys during 1914. The general scope of survey work is to collect reliable information and to distribute it in the form of books and maps or in reply to direct inquiry. In 1914 the state surveys expended about $500,000 and received the benefits of about $100,000 additional expenditure by coöperating Federal or state bureaus. The Association of American State Geologists brings about exchange of views regarding scientific and administrative problems and aims to strengthen interstate and Federal coöperation. A field meeting was held in northern Michigan in August, as guests of the

State Geological Commission, which was attended by one-half the Association.

Topographic Maps. — Topographic surveys were conducted in 15 states in coöperation with the U. S. Geological Survey, which shared the expense. More than 9,000 sq. miles was mapped as a basis for geologic and engineering investigations. State map publications are being based more and more on the county unit instead of the quadrangle.

Economic Geology.—Geology as applied directly to development of commercial mineral resources, continued to receive special attention. Economic work in the several states is summarized in the following paragraphs.

Stones and Minerals for Building Purposes and the Arts.—Most surveys gave attention to the examination of building stone or stone available for use in concrete, or for road ballast or other purposes. Other minerals and rare earths received considerable attention. The Alabama marble-belt map and investigation were finished, and a similar report for Tennessee was in preparation. A report on quarry resources of New York, with special reference to limestone and granite, was prepared. Study of limestones was conducted in Michigan; and reports on building stone and on limestone road materials were published in Ohio and Wisconsin respectively. A bulletin on building and ornamental stones of Minnesota was in press.

Clay products are increasing rapidly, due to their use for building purposes and for paving. Clay resources, therefore, were investigated more or less by all of the state surveys. Clays of Alabama are described in a report nearing completion. A report on 80 samples of clay and shale collected from Illinois coal mines, in coöperation with the University of Illinois and the U. S. Bureau of Mines, was prepared. A report was begun on Colorado carnotite deposits of Mesa, Montrose, and San Miguel counties, covering about 450 sq. miles. This mineral is a source of radium and other rare earths. A report on salt and brines of Michigan and another on salt and gypsum deposits of southwest Virginia were published. Zeolite minerals of New Jersey were investigated. Examinations of glass sand of Indiana and of Pennsylvania were conducted. Brief reports were prepared on brown and blue phosphate, and on tripoli and bauxite of Tennessee. Zirconiferous sandstones of Virginia were described. A bulletin on clays and shales of Minnesota was in press. The Georgia survey published a large volume on asbestos, talc, and soapstone, and began work on limestone, fuller's earth, and bauxite of the Coastal Plain area.

Coal.—Coal investigations were actively conducted in most coal-bearing states. A revised report and map of the Blount Mountain coal field of Alabama was prepared. The Illinois Coöperative Mining Investigation published reports on geology and resources of the northern, eastern, and southwestern fields, and also engineering reports covering nine districts, with special reference to mining efficiency and safety. A report on mine humidity with reference to explosions in Illinois was issued. The survey of two important coal quadrangles was finished by the U. S. Geological Survey in coöperation. In North Dakota the McKenzie County field was surveyed. In Kentucky the eastern and western fields were partly surveyed, and coal analyses were made in coöperation with the U. S. Bureau of Mines. Coals of the Crossville quadrangle were studied in coöperation with the U. S. Geological Survey. A Virginia coal report was published for the Pound Quadrangle; the Pennsylvanian coal area of southwestern Virginia was surveyed and the Mississippian coals were investigated in coöperation with the U. S. Geological Survey. Reports and maps on coal counties of West Virginia (Kanawha, Preston) were published; and others (Logan, Mingo, Boone) were in press.

Oil and Gas.—A report on the Plymouth oil field of Illinois, was published in coöperation with the U. S. Geological Survey and the new field was developed rapidly. Structural surveys were conducted over 450 sq. miles adjoining the field. A coöperative oil report was published for three counties in central Illinois and explorations are now in progress. In Indiana a survey of the Sullivan

County oil and gas field was made. Oil surveys in Oklahoma were continued in coöperation with the U. S. Geological Survey. A report and map of Kanawha County in the West Virginia oil and gas fields were published; and surveys were made of Lewis and Gilmer counties. Maps for three-fourths of the California oil fields were completed, and a report of the oil industry was in press.

Metallic Ores.—Several investigations of precious metals in progress in 1913 in Colorado and Virginia were completed. Similarly, an iron report for Virginia went to press. A new bulletin on Alabama gray iron ores was in preparation. A part of Gogebic iron range of Michigan was resurveyed. Lead-zinc investigations in southwest Missouri were undertaken and large-scale maps begun. Similar work continued in Wisconsin. Oxidation experiments and others on porosity of sandstones and limestones as affecting ore deposition were continued in Missouri.

Detailed Areal Surveys.—Detailed areal work, incidentally including economic, stratigraphic and paleontologic studies, were extended over several thousand square miles. Much of the work was done on county base maps or on quadrangles in coöperation with the U. S. Geological Survey. Clay County, Alabama, was surveyed. Coöperative work in Illinois was finished for two quadrangles, besides those in the coal field already mentioned, and U. S. Geological Survey folios on six quadrangles were in press. A coöperative survey was made of Jefferson County, Kentucky, and another survey of the Trenton formations in the central region. Areal surveys in Missouri were completed for Ste. Genevieve, Grundy, Mercer, and Platte counties. A study of 100 sq. miles in New Jersey was finished. In New York new surveys were made of the Blue Mountain Lake quadrangle of the Adirondack region, and of several others along the St. Lawrence. Work was continued over the Silurian formations from Rochester to Niagara. Coöperative surveys of the Pleistocene of two quadrangles in North Dakota were completed, and work was extended to the northwestern area. The Waynesboro quadrangle, Tennessee, was surveyed. In Virginia 900 sq. miles were surveyed in the areas containing gold, pyrite, and coal. The West Virginia Survey published maps and reports for Preston and Kanawha counties, and sent others to press for Boone, Logan, and Mingo counties. Areal surveys in northwestern Wisconsin were continued.

Stratigraphic and Paleontologic Geology.—Besides investigations already described as including stratigraphic studies, much other special work was done. A bulletin on Triassic life of the Connecticut valley was in press. In Illinois, Missouri, Iowa, Michigan and Ohio, work continued on the Mississippian in coöperation with the U. S. Geological Survey. Devonian stratigraphy and paleontology was actively studied in Illinois, Iowa, Michigan and Missouri. In Indiana the Bloomington quadrangle was surveyed in detail. A coöperative report on Pennsylvanian stratigraphy of Missouri was in press, and another on the faunas was in preparation. (See also XXIII, *Dynamic and Structural Geology.*)

Miscellaneous Maps and Investigations.—Practically all the states published mineral statistics and carried on a large correspondence in reply to inquiries. Geologic reconnaissance studies were conducted in Colorado. A report on central Connecticut in geologic time was prepared. Special geographical or educational bulletins were issued in several states. The development of Florida lake basins was described. A geography of Illinois with special reference to exploration, settlement and commercial development was in preparation. Similar bulletins were prepared in Wisconsin. Field work was finished on the geography of Michigan lakes, and a survey of old beaches and preparation of a tourist's handbook of Mackinac Isle was undertaken. A splendid state geological map of New Jersey was issued, and a base map of Missouri was published in coöperation with the U. S. Geological Survey. A report on the stability of the New Jersey coast line was prepared, and a brief paper on earthquakes in Tennessee was published. An archæological survey of New Jersey covered 360

sq. miles. In Wisconsin land classification continued on a large scale, and mine valuation for taxing purposes was finished.

Surface and Underground Waters.—A report on water power of Alabama was in preparation, and one for Tennessee was published. Analyses of springs, including tests for radium, were made in Colorado. Coöperative underground water studies in Connecticut were continued. A report on the artesian area of northeastern Illinois was completed. A bulletin for North Dakota was in press. The underground supply of one-half of Missouri was investigated. Extensive studies were continued in New Jersey, and were begun in Oklahoma. A report for underground and surface supplies of Wisconsin was in press. An Illinois report on the reclamation of Spoon River bottom-lands was prepared.

Soil, Forest, and Highway Investigations.—Many state surveys investigated soils, forests, and highways, in coöperation with other bureaus. A report on forest resources of Alabama was published early in the year, and a bulletin on geography and vegetation of northern Florida was issued. Michigan wood lots were investigated. A study of Oklahoma trees and shrubs was continued. Coöperative soil surveys were continued in Indiana (three counties), Kentucky, New Jersey (325 sq. miles), Tennessee (Jackson County) and Wisconsin. The State Survey of Indiana also covered two counties. Testing highway materials continued in Alabama and New Jersey. A description of road materials was published for Tennessee, and prepared for publication in Wisconsin. In Minnesota a report and map on surface formations with special reference to soils was in press.

HIGHWAYS

ANDREW P. ANDERSON

Highway Engineering.—In the field of highway engineering the year 1914 has been chiefly notable for the large mileage of standard construction rather than for new inventions or innovations. The tightness of the money market has had but little detrimental effect on road-construction activities. Bonds have sold at somewhat reduced premiums, and now and then a county or district of low financial standing has been unable to find a market at satisfactory rates. The supply of labor has been plentiful and wages in general somewhat below those of last year. Furthermore, competition in the construction field has been unusually keen. Many railroad contractors without employment in their accustomed field have found that they could utilize much of their idle equipment in heavy highway construction. Such mechanical appliances as steam shovels, industrial railways, traction hauling trains, and mechanical loading and unloading devices have been employed in road construction to an unusual extent. The experience of the year will, therefore, give us much information as to the extent to which these mechanical appliances can be economically employed in road work.

Legislation.—But little important road legislation was passed during 1914. Kentucky enacted a state-aid law and provided for a system of state roads. The necessary funds are provided by a state tax of one-half mill, which will amount to about $600,000 annually. Colorado on Nov. 3 adopted a one-half mill tax for state aid which will yield about $500,000 annually. The employment of skilled engineering supervision in the construction of roads built from the proceeds of bond issues was made mandatory under a new law in Mississippi. In Congress the question of Federal aid received considerable attention during the first seven months of the year. The Shackleford Bill passed the House, but in the Senate Committee a new bill embodying the principle of the Bourne plan was substituted. This bill never came to a vote.

Construction.—Concrete roads, with or without a bituminous wearing surface, which had barely passed the experimental stage in 1912 (*A. Y. B.*, 1912, p. 265), have been built very extensively by both state highway departments and local authorities. Furthermore, the construction of plain or water-bound macadam has

STATE HIGHWAY DATA

State	Expenditures					
	Grand Total for Construction, Maintenance, and Administration to Jan. 1, 1914	Expenditures During 1913				
		State-Aid Roads and Bridges		State Roads and Bridges		Total, Including Administration, 1913
		Construction	Maintenance	Construction	Maintenance	
Alabama	$292,039	$116,850	.....	.....	.....	$127,005
Arizona	607,136	.....	.....	177,890	$14,232	274,631
Arkansas	25,000	.....	.....	.....	.....	25,000
California	2,986,880	.....	.....	2,032,084	.....	2,032,084
Colorado	520,478	434,171	.....	.....	.....	473,246
Connecticut	11,502,519	754,436	.....	1,401,231	1,166,637	3,483,575
Delaware	162,695	30,000	.....	.....	.....	30,000
Florida	.....	.....	.....	.....	.....	.....
Georgia	Convict Labor	.....	.....	.....	.....	.....
Idaho	323,000	58,000[5]	.....	.....	.....	68,000
Illinois	480,000	.....	.....	.....	.....	100,000
Indiana	.....	.....	.....	.....	.....	.....
Iowa	101,000	.....	.....	.....	.....	53,000
Kansas	18,000	.....	.....	.....	.....	9,500
Kentucky	25,000	.....	.....	.....	.....	15,000
Louisiana	370,594	111,000	.....	.....	.....	111,000
Maine	3,554,999[20]	386,221	.....	150,621	.....	563,541
Maryland	9,612,529	200,000	.....	1,127,874	261,379	1,589,253
Massachusetts	13,905,396	274,583[7]	.....	1,148,680[8]	750,102	2,266,068
Michigan	1,489,089	307,255	.....	10,215	.....	355,757
Minnesota	1,337,993	368,569	.....	.....	.....	503,186
Mississippi	.....	.....	.....	.....	.....	.....
Missouri	1,146,730[14]	300,022	97,737	.....	.....	408,192
Montana	2,484	.....	.....	.....	.....	2,484
Nebraska	221,067	.....	.....	.....	.....	52,428[12]
Nevada	20,000[16]	.....	.....	.....	.....	.....
New Hampshire	2,083,565	90,671	29,095	222,457	80,565	475,449
New Jersey	5,821,115	558,370	495,903	.....	.....	1,131,891
New Mexico	340,620	.....	.....	121,631	.....	121,631
New York	67,155,471	1,721,696[13]	.....	9,938,340	1,840,586	13,820,934
North Carolina	23,500	.....	.....	.....	.....	5,000
North Dakota	.....	.....	.....	.....	.....	.....
Ohio	3,268,333	656,182	12,039	.....	.....	738,174
Oklahoma	10,323	.....	.....	.....	.....	5,000
Oregon	5,008	.....	.....	.....	.....	5,008
Pennsylvania	20,710,839[4]	743,612	.....	1,904,652	1,919,252	4,606,232
Rhode Island	3,504,067	.....	.....	449,801[9]	260,864	715,664
South Carolina	.....	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....
Texas	.....	.....	.....	.....	.....	.....
Utah	531,000	97,000	.....	.....	.....	97,000
Vermont	2,727,963	385,000	100,000	.....	.....	505,000
Virginia	1,663,317	368,206	.....	.....	.....	368,206
Washington	4,281,989	.....	.....	1,343,407	17,258	1,383,770
West Virginia	118,000[21]	.....	.....	.....	.....	3,500
Wisconsin	1,347,107	828,000	.....	.....	.....	903,000
Wyoming	32,000[17]	.....	.....	.....	.....	8,763
Totals	$162,328,845	$8,789,844	$734,774	$20,028,883	$6,310,875	$37,437,172

[1] Gross revenues. [2] Estimated. [3] Also about 555,000 days statute labor. [4] Total appropriations. [5] $40,000 of this for bridge across Snake River. [6] Registration declared unconstitutional May, 1913. [7] State expenditures on town roads, including $146,266 from Motor Vehicle Fund. [8] Includes $388,361.00 authorized by special acts of Legislature. [9] $170,068.00 of this amount was for bridges. [10] Also 460 miles of earth road. [11] State roads only. [12] For large bridges only. [13] State-aid to towns. [14] Distributed to counties from various funds. [15] Net

STATE HIGHWAY DATA—*Continued*

State	Mileage				Miles Maintained by State Dept., 1913	Automobile Revenues, 1913	State Funds Available, for 1914	Cash Road and Bridge Expenditures of Counties, Districts, and Townships, 1912
	State and State-Aid Roads Completed, 1913	Total State and State-Aid Roads to Jan. 1, 1914	Total Mileage of Surfaced Roads in State[a]	Total Mileage of All Roads[b]				
Alabama	97	200	5,491	49,639	....	$83,000.00[1]	$267.165	$1,644,094
Arizona	81	220	354	5,987	88	17,416.00[1]	258,577	200,000
Arkansas	....	....	1,085	36,445	....	27,545.00[1]	25,000	1,586,050
California	200	....	8,788	48,069	....	75,000.00[2]	5,000,000	9,902,160
Colorado	50	304	304	30,571	....	56,520.00	200,000	1,469,690
Connecticut	....	....	3,100	12,582	....	316,666.76[1]	.....	1,250,000
Delaware	23	134	221	3,000	....	24,735.00[1]	30,000	339,480
Florida	....	....	2,175	17,954	....	.....	.....	1,500,000
Georgia	....	....	12,000[2]	83,986	....	12,000.00[2]	.....	2,750,000
Idaho	....	....	511	18,403	....	35,160.00[1]	250,000	750,000
Illinois	45	185	9,000	94,141	....	507,134.78	500,000	6,500,000
Indiana	....	....	26,831	63,370	....	118,245.00	.....	8,877,553
Iowa	....	....	2,505	104,027	....	787,411.08[1]	60,000	7,500,000
Kansas	....	....	374	98,302	....	186,066.06[1]	10,000	5,155,360
Kentucky	....	....	10,636	58,000	....	52,000.00	25,000	1,933,000[3]
Louisiana	104	....	567	24,962	....	.....	130,000	2,147,063
Maine	168	1,056	3,044	25,528	....	135,635.00	1,100,000	1,482,743
Maryland	220	1,430	2,376	17,025	575	144,930.25	3,500,000	1,000,000
Massachusetts	171	1,030[11]	8,845	17,272	981	629,242.00	2,447,000	2,350,000
Michigan	590	2,344	8,177	68,906	....	190,328.75[1]	320,000	5,725,000
Minnesota	241[18]	....	6,206	79,323	....	40,000.00[2]	1,400,000	3,000,000
Mississippi	....	....	345	44,072	....	[6]	.....	2,000,000
Missouri	....	....	4,756	107,923	....	173,510.50[1]	546,218	4,650,516
Montana	....	....	95	23,319	....	8,700.00	10,000	1,532,788
Nebraska	....	....	249	80,338	....	26,000.00[2]	80,000	2,278,188
Nevada	....	....	62	12,751	....	3,322.94[1]	.....	150,000
New Hampshire	131	872	1,876	15,116	740	141,151.64	362,739[15]	1,000,000
New Jersey	149	1,833	4,500	14,842	....	636,543.07	.....	3,629,772
New Mexico	56	....	705	16,920	....	12,302,73[1]	120,000	300,000
New York	670	4,304	22,000	79,600	3,634	1,275,727.27[1]	14,000,000	6,938,694
North Carolina	....	....	3,449	48,285	....	60,000.00[2]	5,000	2,333,942
North Dakota	....	....	161	61,593	....	35,010.03	.....	1,023,569
Ohio	167	415	28,312	83,681	....	395,063.23	3,500,000	7,350,000
Oklahoma	....	....	499	71,325	....	3,000 00[2]	5,000	3,374,180
Oregon	....	....	4,941	35,896	....	43,476.08	238,000	3,254,665
Pennsylvania	187	1,009	3,476	87,387	6,000	841,062.41[1]	3,000,000	5,864,718
Rhode Island	30	324	1,246	2,121	301	123,851.00	190,000	281,775
South Carolina	....	....	4,888	45,549	....	.....	.....	1,000,000
South Dakota	....	....	286	56,354	....	89,170.00[1]	.....	1,250,000
Tennessee	....	....	5,354	45,913	....	9,000.00[2]	.....	2,000,000
Texas	....	....	4,896	128,971	....	.....	.....	7,269,592
Utah	....	952	1,653	7,970	....	3,000.00[2]	100,000	500,000
Vermont	200	1,431	3,078	14,406	....	111,459.81[1]	410,000	676,039
Virginia	626	2,052	3,732	43,399	....	80,008.32	450,000	2,296,105
Washington	....	....	3,950	39,051	....	48,356.00[1]	2,500,000	4,059,509
West Virginia	....	....	541	32,109	....	40,000.00[1]	.....	1,042,353
Wisconsin	536[10]	1,436	11,163	61,090	....	190,770.00[1]	1,230,000	4,000,000
Wyoming	....	....	416	10,569	....	7,920.00[1]	6,237	365,386[17]
Totals	4,742	21,558	229,219	2,228,042	12,319	7,797,440.71	$42,275,936	$137,483,985

automobile revenue in addition. [16] Equipment for convict labor camps. [17] Equipment for convict labor camps and an inter-state bridge. [18] Also 584 miles of grading, 691 culverts and 100 bridges. [19] Year 1913. [20] Includes town expenditures in state-aid work. [21] Returned to counties in 1911, not expended under state supervision. [a] Based on O.P.R. Bulletin 41, supplemented by additional data from State Highway Departments and Collaborators' reports. [b] Based on O.P.R. Bulletin 41.

not become obsolete, contrary to the popular belief. Since May, 1913, the New York State Highway Department has placed under construction 1,003 miles of road, of which the principal types are water-bound macadam, 287 miles; bituminous macadam, 352 miles; concrete, 217 miles; brick, 91 miles; and other types, 56 miles. Wisconsin may serve as an example of the popularity of state-aid. Of a total of 1,200 townships, 1,000 during the year availed themselves of state-aid in the construction of about 1,600 miles of road and several hundred bridges. In the construction of state roads, New York continues in the lead, with ten million dollars available for construction and $4,750,000 for maintenance. The accompanying table, prepared by the Division of Road Economics in the Office of Public Roads, gives the state and local expenditures, mileage, etc., more fully than can be expressed in any other form. The value of statute labor which is estimated at a total of 15 million dollars for 1913, is not included in the column for local expenditures.

RECLAMATION

FRED G. HARDEN

The Reclamation Service.—On Aug. 13 Congress passed the Reclamation Extension Act, which made radical changes in the sections of the Reclamation Act of 1902 (32 Stat. 388) pertaining to the use of the reclamation fund, the period and method of making payments, the reclamation requirements, the method of assessing operation and maintenance charges, and the method of increasing the construction charges for any project. After July 1, 1915, no expenditures can be made from the reclamation fund unless they have been authorized by Congress. Twenty years is allowed for settlers to complete the payments for their water rights. In the case of lands already entered under or subject to the Reclamation Act, the new law provides that the construction charges or the unpaid portion shall be payable in 20 annual payments, the first being due on Dec. 1 of the year in which public notice affecting the land is issued under the new law. The first four payments are to be each two per cent., and the next two each four per cent., and the other 14 each six per cent., of the construction charge or the portion unpaid at the beginning of the payments. In the case of future entries or water-right applications, five per cent. of the construction charge is to be paid at the time of making entry or application, and the balance is to be paid in 15 annual payments, the first five of which are to be five per cent. each, and the remainder seven per cent. each, of the construction charge. The first of the annual payments is due on Dec. 1 of the fifth calendar year after the initial payment. No increases in charges that have been fixed by public notice can be made, except by agreement between the Secretary of the Interior and a majority of the water-right applicants and entrymen that will be affected by the increase. The Secretary of the Interior is authorized to require that one-fourth of the irrigable area under each water-right application or entry shall be reclaimed and cultivated within three full irrigation seasons after the filing of the application or entry; that one-half shall be reclaimed and cultivated within five full seasons; and that after five years the requirements shall be complied with continuously. Operation and maintenance charges are to be based upon the total costs for each project or unit thereof, and are to be made for each acre-foot of water delivered, but each irrigable acre, whether irrigated or not, is to be charged for a minimum of one acre-foot. In case of failure of an entryman or water-right applicant to pay construction charges when due, a penalty of one per cent. per month till paid is added, and at the end of a year the entry or application may be canceled. If maintenance and operation charges are paid when due or before, a discount of five per cent. is allowed. If unpaid on the first day of the third calendar month after due, a penalty of one per cent. for each month is added till paid. If construction or operation and mainte-

nance charges are in arrears more than a year, no water is to be delivered to the land, the water-right application and homestead entry are subject to cancellation, and all payments which have been made are to be forfeited to the reclamation fund. The new law also provides that the Secretary of the Interior may designate the water-users association or irrigation district under a project the fiscal agent of the United States for the collection of the charges on the project.

The same day this law was passed, the Secretary of the Interior ordered final plats to be submitted showing the lands for which water will be available in 1915, and the appointment of a board for each project consisting of an accountant representing the Secretary, an engineer representing the Reclamation Service, and a representative of the water users, for the purpose of revising the costs of the project. The reports of these boards are to be considered and the costs finally estimated and determined by a general board consisting of the Consulting Engineer to the Secretary of the Interior, the Supervisor of Irrigation, and one other to be appointed by the Secretary.

In his annual report for 1913 the Secretary of the Interior recommended that Congress authorize the issuance of bonds to the amount of $100,000,000 to enable the Reclamation Service to complete the projects under construction as rapidly as possible. No action was taken by Congress. On Jan. 29 the Secretary of the Interior approved the expenditure of $23,460,555.05, more than one-fourth as much as all previous expenditures, on the several projects during 1914. The expenditure of $2,498,848.95 for drainage during 1914 was also approved. The division of these amounts among the projects is given in the accompanying table.

The total estimated receipts of the reclamation fund to June 30, 1914, were $84,429,772.71. The total net investment of the United States in projects was $83,912,058.04. The construction charges collected up to June 30, 1914, amounted to $3,058,459.41 and the operation and maintenance charges to $1,895,827.88. It was estimated at that time that the works would be capable of furnishing water to 1,261,704 acres in the irrigation season of 1914 and that 886,967 acres would be irrigated.

The accompanying table gives the total estimated costs of building the primary projects, the amounts to be expended in 1914, the acreages cropped and the average values per acre of the crops raised in 1913, the public and private lands included in the projects, and the building and operation and maintenance charges as fixed by public notices.

Department of Agriculture.—The appropriations for the Department for the year ending June 30, 1915, include the following items for irrigation and drainage: $70,000 for investigation in connection with western irrigated agriculture, the utilization of lands in the Reclamation Service projects, and other areas in the arid and semi-arid regions: $40,000 to encourage and aid in the agricultural development of the government irrigation projects by assisting the settlers through demonstration, advice, or otherwise; $106,400 to investigate the laws and institutions relating to irrigation, the use of water, and the use of different kinds of power and appliances for irrigation; and $96,280 to investigate the drainage of swamp and other wet lands and to prepare plans for the removal of the surplus waters.

Carey Act Lands.—During the fiscal year ending June 30, 1913, segregations totaling 356,656.76 acres were applied for under the Carey Act; 394,760.94 acres was segregated by the Department of the Interior; and patents were issued for 35,170.62 acres. Applications for temporary withdrawals were made for 286,749.60 acres; 586,321.03 acres was withdrawn; and 129,082.96 acres that had been withdrawn was restored.

The Commissioner of the General Land Office in his annual report for 1913 advocated the passage by Congress of a consolidated Carey act to replace the present Act and its amendments and to provide for unlimited grants to the states, to require one year of actual residence and cultivation before the issuance of patents by the states, to require construction of

IRRIGATION PROJECTS OF THE U. S. RECLAMATION SERVICE

State	Project	Total Estimated Cost of Building	Estimated Area of Irrigable Lands (acres)		Charges		Amount to be Expended, 1914	Amount to be Expended for Drainage, to Dec. 31, 1914	Area Cropped, 1913 (acres)	Value of Crops per Acre, 1913
			Public	Private	Building	Operation and Maintenance				
Arizona	Salt River	$11,862,972.46	20,074	198,526	Rental	.....	$909,846.17	$1,191.72	161,642	$28.17
Arizona-California	Yuma	9,899,495.96	74,000	57,000	$55, $66	$1.00	831,126.25	185,608.36[1]	16,726	36.48
California	Orland	936,000.00	4	19,996	Rental	.....	255,700.18	1,000.00[1]	5,987	34.07
Colorado	Grand Valley	4,595,020.00	30,070	22,930	Rental	.....	1,873,184.18	2,000.00[2]	.....	.....
	Uncompahgre	9,192,396 83	34,000	106,000	Rental	.....	750,861.30	6,498.93	30,366	32.77
Idaho	Boise	14,434,656.47	67,711	139,289	Rental	.....	3,600,057.35	309,518.43	50,865	16.32
	Minidoka	4,955,992.23	96,725	22,000	$22, $30, $40	.75	476,874.30	700,639.63	66,241	17.16
Kansas	Garden City	391,082.51	.....	10,677	$37.50	.....	1,000.00	.....	.....	.....
Montana	Huntley	1,447,050.26	29,213	3,192	$30, $50	1.00	281,000.50	279,692.42	15,798	29.35
	Milk River	7,746,897.05	72,000	147,557	Rental	.....	2,236,713.76	.....	2,459	9.76
	Sun River	8,387,605.00	74,974	31,372	$30, $36	1.00	1,712,337.27	.....	6,807	15.51
Montana-North Dakota	Lower Yellowstone	2,836,626.32	17,913	42,203	$42.50, $45	1.50	103,800.00	65,330.00	7,410	13.71
Nebraska-Wyoming	North Platte	12,828,014.66	83,358	45,912	$45, $55	1.10	733,875.70	133,221.67	54,306	14.40
Nevada	Truckee-Carson	8,449,853.11	140,451	65,549	$22, $30	.75	807,706.17	67,700.01	42,943	12.92
New Mexico	Carlsbad	1,040,253.05	.....	20,277	$31, $45	1.75	194,100.21	67,780.00	12,195	21.10
	Hondo	439,351.10	240	9,760	Rental	.....	110,001.11	.....	808	17.62
New Mexico-Texas	Rio Grande	9,771,100.00	13,039	141,961	Rental	.....	3,683,192.17	50,000.82	26,720	25.40
North Dakota	Missouri River	714,175.48	882	11,357	$38	1.00—1.50	70,000.00	.....	1,686	23.06
Oklahoma	Lawton	100,000.00	.....	.....	.....	.....	.....	.....	.....	.....
Oregon	Central Oregon	500,000.00	.....	.....	.....	.....	.....	.....	.....	.....
	Umatilla	3,841,324.78	22,336	33,164	$60, $70	1.30	572,000.00	54,067.96	3,033	27.72
Oregon-California	Klamath	4,331,756.55	32,000	38,700	$30	.75	175,219.62	194,697.20	18,928	15.22
South Dakota	Belle Fourche	3,583,081.43	44,631	55,369	$30, $35, $40	.60	163,039.07	2,000.00	32,568	10.91
Utah	Strawberry Valley	3,407,000.00	.....	60,000	Rental	.....	686,641.41	.....	.....	.....
Washington	Okanogan	858,543.88	1,234	8,837	$65, $110	2.25	149,000.37	.....	2,736	31.59
	Yakima-Sunnyside	13,049,157.92	2,565	100,259	$10, $31, $52	1.80— .95	658,085.38	11,418.80	46,230	61.00
	Yakima-Tieton		2,175	32,362	$93	1.50	113,997.79	.....	12,595	33.60
	Yakima-Storage		.....	.....	.....	.....	608,657.61	.....	.....	.....
Wyoming	Shoshone	9,452,000.00	155,469	8,653	$45, $47, $50, $52	1.00	593,399.20	366,483.00	18,178	14.40
Indian Projects	Blackfeet (Mont.)	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Flathead (Mont.)	.....	.....	.....	.....	.....	.....	.....	4,579	11.76
	Fort Peck (Mont.)	.....	.....	.....	.....	.....	.....	.....	410	4.78
Secondary projects		.....	.....	.....	.....	.....	709,916.90	.....	.....	.....
Townsites		.....	.....	.....	.....	.....	4,421.97	.....	.....	.....
Revolving Fund		.....	.....	.....	.....	.....	394,799.11	.....	.....	.....
Totals		$149,051,407.05	1,015,064	1,432,902	.....	.....	$23,460,555.05	$2,498,848.95	642,216[3]	$24.50[4]

[1] Part for drainage construction under operation and maintenance. [2] For drainage investigations. [3] 539,934 acres in 1913. [4] $25.60 in 1913.

works to be begun within two years of the date of segregation, and to grant all necessary rights-of-way for the projects.

Much difficulty is being experienced by the Carey Act companies throughout the West and attempts will be made by the legislatures of most of the states at their sessions during the winter of 1914-15 to remedy the conditions. Two projects in Idaho were sold during 1914 at receivers' sales, one being bought in by the state to protect its equity. In some of the states movements are on foot to attempt to bring about adjustments through commissions composed of representatives of the state, the company, the bondholders, and the settlers. On May 16 the State Land Board of Colorado began hearings to determine the financial ability of the Carey Act companies in that state to put water upon the lands in their segregations. If any are found unable to do so their rights are to be canceled.

Irrigation Conferences.—The twenty-first International Irrigation Congress was held at Calgary, Canada, Oct. 5-9. Various state irrigation congresses were held during the year. The topics discussed at most of these meetings were methods of assisting settlers, of improving and making more uniform the irrigation district laws of the states, and of securing Federal assistance for Carey Act and irrigation-district projects. A conference between representatives of the Secretary of the Interior and delegates appointed by the governors of 16 of the western states was held at Denver, on April 9-11. This conference was called by the Secretary of the Interior to discuss conditions under the Carey, the Reclamation, and the Desert-Land acts and the irrigation laws of the states. Resolutions were adopted recommending that laws be passed permitting (1) the investment of postal-saving funds in irrigation-district bonds; (2) the turning over of non-mineral lands to the states for the purpose of creating trust funds for the use of irrigation districts and Carey-Act projects; (3) the taking by the Government of irrigation-district bonds running 25 years with interest at the lowest possible rate in payment for its reclamation works; (4) the stepping in and completing of any Carey-Act project by the Government whenever a state declares itself unable to complete the project. Resolutions were also adopted asking Congress to grant relief to settlers in reclamation and irrigation districts where the projects have failed, and recommending that the governors of each of the states represented appoint representatives on a commission to prepare suitable irrigation-district laws or amendments to the present laws with a view to securing a uniformity in the irrigation statutes of the different states.

Water Supply for Irrigation.—Interest in irrigation has continued to increase in the semi-arid regions, and canals constructed in Nebraska and neighboring states in the dry years of the early nineties and since abandoned are being opened up again. The United States Geological Survey has investigated and reported upon the underground waters available for irrigation at several places in the Great Plains region. The Secretary of the Interior has set aside $50,000 to be used in investigating the water rights and the use of water from the Colorado River.

Irrigation Legislation and Litigation.—None of the legislatures of the arid or semi-arid states were in session during 1914 and the only legislation during the year was a provision for the organization of irrigation districts included in the Ohio Conservancy Act. The law providing for the construction of an irrigation system for the Quincy Valley lands in Washington (*A. Y. B.*, 1913, p. 280) was defeated at the November election.

On April 27 the Supreme Court of the United States in the case of San Joaquin and Kings River Canal and Irrigation Co., Inc., *v.* counties of Stanislaus, Fresno, and Mercer, State of California (233 U. S. 454), reversed the often quoted decree of the Circuit Court for the Northern District of California (191 Fed. Rept. 875), and held that water rights should be included as well as the tangible property in estimating the value of a company's plant for the purpose of fixing water rates.

The special master in chancery has

completed the taking of the testimony in the case of Wyoming *v.* Laramie-Poudre Irrigation Co. *et al.* (*A. Y. B.*, 1913, p. 280) and is preparing it for submission to the Supreme Court.

The American Society of Civil Engineers at its meeting in June appointed a committee to ascertain the need for a national water law and, if it was found that such a law was needed to protect existing rights or encourage new development, to prepare a preliminary draft of a law.

Drainage Legislation.—The most important legislation of the year on drainage was the passage of the Conservancy Act in Ohio. This law permits the formation of districts to prevent floods, regulate stream channels, reclaim wet and overflowed lands, provide for irrigation, regulate flow of streams, and divert or eliminate watercourses. In general it follows the drainage-district laws of the other states of the Mississippi Valley. Provisions of interest are those providing for coöperation with the United States or other agencies; for irrigation; that bonds bearing five per cent. or less may not be sold for less than par; and that additional rights of any kind developed by the district remain the property of the district and may be sold or leased by it. A petition for the formation of the Miami Conservancy District has been appealed to the state Supreme Court and in hearing it the court will pass upon the constitutionality of the law.

Minor changes have been made in the drainage laws of South Carolina and a few other eastern states. The drainage and levee law of Virginia was reënacted with a few minor amendments. The district law of Mississippi was amended to define more accurately the duties, rights and powers of drainage commissioners, to validate bonds, and to provide for construing the law and for the formation of subdistricts. A district law similar to the laws of Illinois and Michigan was passed in New York.

Drainage Projects. — Considerable interest has been shown throughout the United States in drainage during the year. In the states of the Mississippi Valley reclamation and drainage districts have been formed, surveys made, plans drawn, and works constructed to drain or protect a considerable area of swamp and overflowed lands. The committee of consulting engineers employed by the Dayton, O., Flood Committee have reported in favor of a detention basin system which it is estimated will cost $18,000,000 to $20,000,000. The engineers estimated that it would cost $100,000,000 to deepen and widen the channel of the Miami River.

Tentative plans have been approved for the reclamation of 500,000 acres of seeped lands in the San Luis Valley of Colorado, the work to be done by the state in coöperation with the Federal Government and the large landowners. The Intercounty Improvement District of Washington is planning to spend $250,000 per year for six years in straightening and clearing the Puyallup, White, and Green rivers and protecting the banks. Early in the year the supervisors of Los Angeles County, California, appointed a board to evolve a plan to protect the city from floods. This board has reported upon a plan which will require the expenditure of $9,500,000.

The fourth annual Drainage Congress met at Savannah, Ga., on April 22-25. After discussing the drainage needs of the country, resolutions were adopted asking Congress to pass the Clark-Williams bill which provides for Federal assistance in draining swamp and overflowed lands.

WATERWAYS AND HARBORS

T. W. Van Metre

Appropriations. — The River and Harbor bill for the fiscal year 1915 as adopted by the House of Representatives contained appropriations for various projects amounting to more than $50,000,000. The entire bill was subjected to a fire of intense criticism in the Senate, with the re-

sult that a lump appropriation of $20,000,000, approved Oct. 2, 1914, was made, to be spent at the direction of the Army engineers. As a result of this heavy decrease of the appropriation many improvements that have been planned will not be taken up and the work on many already in progress will be curtailed. The Sundry Civil Act, approved Aug. 1, carried an appropriation of $6,988,500 for the continuation of improvements already under contract. The total appropriation for river and harbor improvements since the establishment of the Government is $821,510,365.47. During the fiscal year ending June 30, 1914, the Government expended $49,320,425.55 in river and harbor work.

Boston.—The 35-ft. channel entrance to Boston is practically complete, and agitation is now being made for a 45-ft. channel, 2,000 ft. wide, from President Roads to the sea and two channels 1,200 ft. wide and 40 ft. deep from President Roads to the inner harbor. The two new 1,200-ft. piers (Commonwealth Piers Nos. 5 & 6) constructed by the state at Boston are practically completed and both are in use, No. 6 being leased to the Boston Fish Market Corporation. Pier No. 1 is being constructed in East Boston, and the building of a great 1,200-ft. municipal dry dock on a ledge on the Commonwealth Flats in South Boston, near Commonwealth Pier No. 6, has been started. The estimated cost of the dry dock is $2,817,265.

New London.—The project of making New London a port for trans-Atlantic commerce is now being actively pushed forward. The state of Connecticut has appropriated $1,000,000 for the improvement of the harbor, and an ocean pier 1,000 ft. long and 200 ft. wide is being constructed.

New York.—There are two entrance channels to New York Harbor, the Gedney Channel passing close to Sandy Hook, which since 1891 has had a depth of 30 ft., and the new Ambrose Channel, completed in 1914. The latter channel, the improvement of which was authorized by Congress in 1899, now has a width of 2,000 ft. and a depth of 40 ft., the work of constructing it costing almost $6,000,000. This entrance is navigated safely not only during daylight but at nights and in foggy weather. Vessels can now enter the harbor at all hours of the night. The 40-ft. main channel extends through the central part of the Upper Bay connecting with the Hudson River channel at the Battery. On the east side the Hudson River channel has a depth of 40 ft. up to the northern limit of the city, but on the western side shoals occur at intervals above Ellis Island, the depth along the pier head line below the point opposite 50th Street varying from 33 to 43 ft. Above this point the water along the west shore has less depth. Under a project adopted by Congress in 1913 the western part of the channel has been improved until trans-Atlantic steamers are able to enter and leave their berths in Hoboken at all stages of the tide.

From the Narrows the Bay Ridge and Red Hook channels stretch along the eastern side of the upper bay to East River, separated from the main channel by the broad shoal off Gowanus Bay and Governor's Island. Bay Ridge Channel now has a depth of 40 ft. and Red Hook Channel of 35 ft. The East River now has a depth of 30 ft. throughout its length at low water. Since 1852, when Congress first appropriated money for the removal of reefs and rocks in Hell Gate, the Federal Government has spent over $5,000,000 in the improvement of the East River. At the present time further improvements are contemplated, the cost of which is estimated at about $13,000,000. Other minor Federal improvements in the vicinity of New York Harbor have been continued during the year. On the Jamaica Bay project, undertaken at the joint expense of New York City and the Federal Government, little progress has as yet been made.

Of the 771 miles of water front of the port of New York, of which 290 miles have been improved, the city now owns 127 miles, of which 47 miles are improved. The city has expended nearly $120,000,000 in the acquisition and improvement of water-front property, and at the present time is planning and executing improvements on a greater scale than ever before. On the Brooklyn water

front the property is being purchased on which to establish a large municipal freight terminal which will be served by a belt railroad operated by all the trunk lines entering New York (*A. Y. B.*, 1913, p. 302). The city is building one full pier and one half pier, 1,000 ft. in length, just north of 44th Street, and it is also planning to construct in Brooklyn a 1,100-ft. dry dock, which can accommodate the largest vessels in the world.

Philadelphia. — The 35-ft. channel being dredged from Philadelphia to the sea by the Federal Government is complete below Gloucester, and the work of completing it to the upper part of the Philadelphia Harbor is being carried forward, $1,000,000 of the 1914 Congressional appropriation being allotted to the work by the Army engineers.

The city government of Philadelphia is taking an active interest in the improvement of the harbor. It is helping the work of deepening the channels by dredging operations between the 35-ft. channel constructed by the Federal Government and the pier-head line off Greenwich piers, and it is deepening and widening the Schuylkill River, the intention being to establish a channel with a minimum depth of 27 ft. and a uniform width of 400 ft. from Walnut Street to the Delaware River. Under a law enacted in 1913 the city has for the first time the right to expropriate water-front properties needed for port development. The new municipal pier at the foot of Dock Street has been completed and one of the two municipal Southwark piers is being constructed.

Early in 1914 the city entered into an agreement with the Pennsylvania and the Baltimore & Ohio railroads, which when carried out will give Philadelphia a chance to become one of the best equipped ports on the Atlantic seaboard. By the terms of this agreement the city purchased from the railroads 3,400 ft. of their present water front south of McKean Street and the railroads will take possession of the river front immediately south of this location. Here the railroads will construct two terminal yards, to be entered by an elevated railroad built to replace the two tracks now reaching the river at street grade. On the property acquired from the railroads and some unimproved adjoining private property the city intends eventually to build ten modern piers 250 to 300 ft. wide and from 900 to 1,200 ft. in length, each pier to cost $1,500,000. A proposal has been submitted to the Navy Department and a bill introduced in Congress providing for the construction of municipal piers along the Back Channel north of League Island. These piers would be just south of the railroad terminal yards and would not only afford unusual facilities for handling bulk freight but would provide valuable wharfage and shipping facilities for the Navy Yard. The agreement with the railroads guarantees belt-line service to every wharf in South Philadelphia. The total cost of all the improvements planned to be carried out at once under the agreement will be $23,900,000, of which the city's share will be $10,800,000.

South Atlantic Harbors.—Baltimore now has a 35-ft. channel entrance. The new municipal pier is almost completed. At Norfolk and Newport News the 35-ft. channels are almost completed. The channel from Charleston to the sea, a distance of nine miles, has a depth of 28 ft. throughout its length. The channel at Savannah has an average depth of 27 ft. at mean low water.

Gulf Harbors.—The improvement of Tampa Bay has been completed, the harbor channel having a depth of 26 ft., a width of 300 ft. in the bay and of 500 ft. across the bar. The improved channel in the harbor of Mobile, 33½ miles long, has an average width of 900 ft. and a minimum depth of 26 ft. at mean low water. The channel of the Southwest Pass of the Mississippi River below New Orleans has a minimum depth of 35 ft. The Board of Commissioners of the Port of New Orleans controls nearly all of the water front of the city, and within recent years municipal terminals of the most advanced type have been planned and constructed. The most important improvement now under way is a $3,000,000 cotton warehouse and handling plant. It will consist of multiple-story concrete units, entirely fireproof. The cotton

will be handled by machinery, stored, and loaded into vessels at a minimum expense.

Galveston harbor has an entrance channel 850 ft. wide at its narrowest point and with a depth of 30½ ft. over the outer bar. The channel along the wharf front, known as the Galveston channel, has been maintained at a depth of 30 ft. for a length of five miles. From Galveston a 25-ft. channel extends eight miles northwest to Texas City. This channel is being dredged to a 30-ft. depth, more than a third of the work being completed. From Bolivar Roads in Galveston Harbor the Houston Ship Channel has been partially constructed for a distance of 57 miles to Houston, at the joint cost of the Federal Government and Harris County, Texas.

Pacific Harbors.—The Los Angeles Harbor in 1913 had 16,000 ft. of wharf frontage accessible to vessels drawing 30 ft. of water. The inner harbor originally had a depth of about two feet. The city has assisted in the work of dredging and has constructed several commercial wharves. The improvement of San Francisco Harbor has consisted mainly of the removal of dangerous rocks in the channel. Practically all of the work has been done to a depth of 30 ft., making navigation much safer and easier. Oakland Harbor, which was originally a tidal estuary with a depth of only a few feet, now has, about two-thirds finished, a channel 500 ft. wide and 30 ft. deep from deep water in San Francisco Bay, and a channel 300 ft. wide and 25 ft. deep around the tidal basin.

No city in the country is taking more energetic steps in port improvement than Seattle. Bond issues amounting to $6,300,000 have been authorized in the last three years, and as they are sold the proceeds are being used in the construction of new docks and terminals. At Smith's Cove, on the north side of the outer harbor, a lumber and machinery terminal is being constructed at a cost of $1,000,000, and the East Waterway on the opposite side is to be equipped with new quays and storage warehouses at a cost of $3,850,000. It is thought that the canal connecting the outer harbor with Lake Washington will be completed in 1915, after which Seattle will have a fresh-water harbor with a frontage of approximately 70 miles. The level of Lake Washington will be reduced eight feet, to the level of Lake Union, while the level of Salmon Bay will be raised to that of Lake Union. Two locks, each with a depth of 36 ft., one 825 ft. by 80 ft. and the other 125 ft. by 30 ft., furnish the connection between the canal and Shilshole Bay. The expense of this improvement has been divided between King County and the Federal Government.

Rivers.—The Hudson River improvement, consisting of the construction of a dam and locks at Troy and the deepening of the channel to 12 ft. from Troy to Hudson so as to standardize the river with the new Barge Canal, was temporarily interrupted for part of the year, owing to a shortage of funds, but the Army engineers have allotted $750,000 to the continuation of this work, which it is hoped will be completed by the time the canal is finished.

Work on the channel of the Mississippi River from the Head of Passes to the Ohio River has been continued during the year, and $3,750,000 has been allotted to carry it on in 1915. To the continuation of the improvement between the Ohio River and St. Paul $1,200,000 has been allotted. The renewal in July of a barge service between St. Paul and New Orleans, after a lapse of 20 years, seems to indicate that the Mississippi River is to regain a measure of its commercial importance. Nearly a million dollars has been allotted for continuing the improvement of the Missouri River.

Of the 54 dams to be constructed in the Ohio River below Pittsburgh, 12 are now completed and in operation, 13 are under contract, and seven have been authorized but not yet put under contract. The Columbia River improvement, upon which several million dollars is being spent, is progressing rapidly, and the city of Portland is sharing part of the expense; $1,785,000 has been allotted for the work of 1915, $1,000,000 for the continuance of the jetties and dredging at the mouth of the river.

At St. Mary's River between Lakes Superior and Michigan the work on the third and fourth locks is progressing. The third lock is about two-thirds completed.

The projects mentioned above are the most important of the river improvements being carried on by the Federal Government, though many other streams, especially the more important tributaries of the Mississippi River and the large rivers on the Gulf Coast, are being widened and deepened. Work on many of these streams during 1915 will be curtailed because of the small appropriation.

Atlantic Intracoastal Waterway.—This waterway, with the exception of the Cape Cod Canal, has made little progress during the year. The Rivers and Harbors bill as prepared in the House of Representatives contained an appropriation of $1,300,000 for the purchase by the Federal Government of the Chesapeake and Delaware Canal, but the appropriation was killed in the Senate; and the project of constructing a ship canal across the state of New Jersey, which has been recommended by the Army engineers, has not been considered yet. The deepening of the recently acquired Chesapeake and Albemarle Canal between Norfolk and Beaufort Inlet to 12 ft. has been partly done. South of Beaufort Inlet little progress has been made on the proposed waterway to St. John's River, Florida, and it is unlikely that much will be done in 1915.

Cape Cod Canal.—On July 29 the new Cape Cod Canal, connecting Buzzard's Bay and Cape Cod Bay, was opened to traffic with imposing ceremonies. This waterway, like the Panama Canal, had been talked of for nearly three centuries before it was constructed. Miles Standish is said to have suggested such a canal. Washington, who during his time took a leading position in the movement for waterway improvement, ordered a survey of the route "which would give greater security to navigation and against the enemy." The canal has been constructed by a private corporation at a cost of $12,000,000. It is eight miles long, and when completed will have a depth of 25 ft. and a minimum bottom width of 100 ft. At the time of its opening the minimum depth was 15 ft. The canal brings Boston 70 miles nearer to New York, Philadelphia and other Atlantic ports. It has been estimated that previous to the completion of the canal 25,000,000 tons of freight and 500,000 passengers were carried around Cape Cod each year. In the last 60 years no less than 2,000 vessels of various kinds have been wrecked while attempting the passage around Cape Cod and about 800 lives have been lost. If half the traffic now pursuing the outside route adopts the new one, the canal will be a profitable enterprise to its builders.

New York Barge Canal.—Up to Sept. 1, work on the new canal costing a total of $37,276,906 had been entirely finished, and on additional work, contracted for but not finished, $32,774,400 had been expended. The route of this canal and its dimensions were described in the last issue of the YEAR BOOK (p. 287). The total cost of the entire Barge-Canal system will be about $120,000,000, and the public terminals which the state is constructing at different points along the route will cost $20,000,000. Construction work was begun in 1905, and it is hoped that the canal will be opened to traffic during 1915.

THE PANAMA CANAL

T. W. VAN METRE

The Canal Project.—The opening of the Panama Canal to commercial traffic on Aug. 15, 1914, signalized the accomplishment of one of the most brilliant engineering feats ever undertaken and the successful completion of a project which has been an object of deep interest to the people of the United States for nearly three-quarters of a century. The outcome of the war between the United States and Mexico from 1846 to 1848 caused the people of the United States to take their first active interest in the project. Political necessity, the result of the acquisition of territory on the Pacific coast, where gold was discovered within a year of the cession,

demanded the establishment of new transportation lines to accommodate the hordes of gold seekers and settlers who rushed to the western coast. Steamship service was immediately established from New York and other Atlantic ports to the Caribbean shore of the Isthmus of Panama, and also between the Bay of Panama and California, the transfer of passengers and freight between the two coasts being accomplished by small boats ascending the Chagres River and by pack trains crossing the watershed. Along this route a company of Americans constructed a railroad which was opened for service in 1855. Another isthmian route was established across Nicaragua. In 1850 the famous Clayton-Bulwer Treaty with Great Britain, following other conventions with New Granada and Nicaragua to the same end, was entered into for the purpose of encouraging the project for the construction of an adequate water transportation line across the isthmus. But though several surveys of both the Nicaragua and the Panama routes were made under the direction of the United States Government during the decades immediately following, no results of any importance were accomplished until 1895, when President Cleveland was authorized by Congress to appoint a board of three engineers, known as the Nicaragua Canal Board, for the purpose of investigating and reporting upon the cost of construction of a canal along the Nicaragua route.

Meanwhile in 1879 a French corporation, with Ferdinand de Lesseps as president, had been organized for the purpose of building a canal across the Isthmus of Panama. This company commenced construction operations in 1883 and energetically carried on the work until 1889, when it became bankrupt and was dissolved. The liquidator appointed by the court to assume charge of the assets of the old corporation succeeded after five years of endeavor in organizing a new company, which again took up the work. The new organization, however, failed to make much progress in the undertaking, and it was induced, when the United States finally took definite steps toward the construction of an isthmian waterway, to dispose of its property to the United States Government.

The Nicaragua Canal Board, appointed in 1895, found it impracticable to perform within the time fixed by Congress the work which it had been authorized to do. In 1897 Congress authorized the appointment of a second board, known as the Nicaragua Canal Commission, which reported in 1899 that still more comprehensive surveys would have to be made before the most feasible route for a canal could be definitely determined. As a result of this recommendation a third board of nine men, the Isthmian Canal Commission, was appointed in 1899

> to make investigations of any and all practicable routes for a canal across the said Isthmus of Panama and particularly to investigate the two routes, known respectively as the Nicaragua route and the Panama route, with a view to determine the most practicable and feasible route for such canal, together with the proximate and probable cost of constructing a canal at each of the two or more said routes.

This first Isthmian Canal Commission recommended in 1901 the construction of a canal along the Nicaragua route, but in January, 1902, when an agreement was reached with the French canal company whereby that corporation consented to sell its property and franchises to the United States for $40,000,000, the Commission made a supplementary report to the effect that the "Panama route would be the most practicable and feasible route" for the canal. On June 28, 1902, the Spooner bill was enacted, by the terms of which the President was authorized to purchase for $40,000,000 the property of the French canal company, to secure by treaty with Colombia the perpetual control of a strip of land not less than six miles wide through which the canal was to run, and then to proceed with the construction of the canal. An Isthmian Canal Commission of seven members was to be created to have charge of the work, and the Secretary of the Treasury was authorized to borrow $130,000,000 on the credit of the United States to secure funds to defray the expendi-

tures authorized. The United States Government then negotiated a treaty with Colombia, by the terms of which Colombia, for the sum of $10,000,000 down and annual payments of $250,000 beginning after nine years, was to authorize the French canal company to sell its concessions and property to the United States, and to grant to the United States perpetual administration and control, for canal purposes, of a strip of land 30 miles wide across the Isthmus of Panama. This treaty was ratified by the United States Senate on March 17, 1903, but the Colombian Government failed to ratify it. Indignant at what they considered a violation of their rights, the people of the state of Panama revolted and in November, 1903, established a republic. The United States immediately recognized the new Government and negotiated with it a treaty by which the right to construct the canal and the perpetual occupation and control of a canal zone ten miles wide were secured in return for the same financial considerations previously offered to Colombia. The treaty with Panama was ratified on Feb. 23, 1904, and a week later President Roosevelt appointed the first Isthmian Canal Commission authorized by the Spooner Act. The transfer of the property of the French canal company was effected on May 4, 1904.

The question of what type of canal should be built, whether it should be a sea-level waterway or one with locks, was referred to a board of consulting engineers of 13 members, five of whom were foreigners. The majority of the board, including all the foreign engineers and three of the Americans, reported in favor of a sea-level canal, but the majority of the American engineers, as well as a majority of those engineers on the board who had previously been selected to direct the construction of the canal, favored the lock project. The reports of the Board were referred by President Roosevelt to Congress, and that body, in June, 1906, decided in favor of a lock canal, along the lines suggested in the minority report.

Another great problem confronting the canal builders was the question of sanitation. To the unhealthful condition of the Canal Zone had been due in a large measure the failure of the French canal builders. One of President Roosevelt's early acts after the naming of the Commission was the appointment of Dr. W. C. Gorgas, a colonel of the United States Army, as sanitary officer of the Canal Zone. For more than a year after his arrival on the Isthmus in June, 1904, his work was impeded because of lack of proper financial support, but in 1905, when Charles E. Magoon became Governor of the Canal Zone, prompt steps were taken to carry on a vigorous campaign of sanitation. A yellow-fever epidemic just breaking out was soon checked, and steps taken to prevent its recurrence by the complete extirpation of the germ-carrying mosquitoes. From that time forward Colonel Gorgas received ample support and assistance, and under his efficient administration yellow fever in Panama was stamped out, malaria was checked, and the isthmus was made one of the most healthful regions in the tropics.

During the first three years construction work was necessarily slow. Much preparatory work had to be done, and it was found that the commission organization was not so efficient as was expected. Greater concentration of authority was needed. The first Commission resigned in March, 1905, and another was appointed on April 1. This Commission made fair progress, but as time went on it became evident that the chairman of the Commission ought to be made the responsible head of the entire work. Early in 1907 the Commission was reorganized, with Army engineers in a majority, Col. George W. Goethals was appointed Chairman of the Commission and Chief Engineer, the several members of the Commission were required to report through the Chairman, and under the direction of Colonel Goethals and his associates the construction work proceeded rapidly.

Plan of the Canal.—By impounding the waters of the Rio Chagres and its tributaries with a huge dam at Gatun, a lake was to be formed in the central part of the Isthmus of Panama, 85 ft. above the level of the sea. At Gatun three pairs of locks in flight

were to furnish the connection between Gatun Lake and the channel to be dredged 8½ miles northward to and through Limon Bay on the Atlantic. From the southern part of Gatun Lake, 24 miles southwest of Gatun, a deep cut was to be made through the highland for a distance of about nine miles to Pedro Miguel. At this point locks were to provide connections with a small lake, of a width of about 1½ miles, to be formed 30 ft. below the level of Gatun Lake, by impounding the waters of the Cocoli River. From this lake two pairs of locks in series were to furnish connection with a channel passing out 8½ miles to the Pacific Ocean. In the estimate made in 1906 it was thought that the total excavation necessary would amount to 106,735,000 cu. yd., the filling to 36,580,000 cu. yd. and the concrete material to 3,000,000 cu. yd., but revised estimates in 1908 placed the excavation at 174,666,595 cu. yd., the filling at 29,387,000 cu. yd. and the concrete at 5,015,000 cu. yd. These estimates also fell far short of later ones.

Organization.—On July 1, 1908, Colonel Goethals brought into effect the organization by which the work of constructing the canal was accomplished. Three great construction divisions were established, each under the charge of a division engineer. The Atlantic division, under Major W. L. Sibert, had charge of the work extending from the deep water in the Caribbean to include the Gatun locks and dam; the Central division, under Lieut.-Col. D. D. Gaillard, had from Gatun dam to the Pedro Miguel locks, including the Culebra Cut; and the Pacific division, under S. B. Williamson, had from Pedro Miguel locks to the deep waters of the Pacific. Three additional divisions had charge of the mechanical and other accessory problems of design and engineering, and a quartermaster's and a subsistence department had charge of the recruitment of labor, the division of materials and supplies, and the subsistence of employees.

On Dec. 12, 1912, the work of the Pacific division was advanced so far that that division was abolished and the remainder of the work placed under the second and fifth division of the Chief Engineer's office. The Central division was abolished on Oct. 10, 1913, when the dike at Gamboa, which held back the waters of Gatun Lake, was blown up and the flooding of the Culebra Cut, which had begun on Oct. 1, was completed; and the Atlantic division, as well as the fifth division of the Chief Engineer's office, passed out of existence on Feb. 1, 1914, the Gatun dam having been practically completed.

On April 1, 1914, in accordance with the provisions of the Panama Canal Act of Aug. 24, 1912, put in effect by an executive order signed Jan. 27, 1914, the Isthmian Canal Commission ceased to exist. It was succeeded by the Panama Canal with Colonel Goethals as Governor (see also I, *American History*). Only a few elements of the old organization are still retained to carry to completion the work yet remaining.

The Channel.—The total length of the canal from deep water to deep water in the two oceans is 50.3 miles, the length from shore line to shore line being about nine miles less. When finished the minimum bottom width of the channel, occurring in the Culebra Cut, will be 300 ft.; the minimum depth in the submarine and earth section will be 41 ft., and in the deep cut 45 ft.

Excavation.—Up to Aug. 1, 1914, the total amount of canal excavation was 224,073,363 cu. yd., and the estimated amount of excavation remaining to be done was 14,722,224 cu. yd. Of the quantity excavated 50,209,958 cu. yd. was removed from the Atlantic section, 116,197,952 cu. yd. from the Central section, of which 103,252,128 cu. yd. came from the Culebra Cut, and 57,665,453 cu. yd. from the Pacific section. From Jan. 1 to July 31, 1914, the amount of excavation was 8,616,660 cu. yd. Of the total excavation accomplished 130,160,048 cu. yd. was dry and 93,914,884 cu. yd. was wet. The greatest quantity of work done in a single year was done in 1908 when the excavation amounted to 37,116,735 cu. yd. On Dec. 1, 1908, it was estimated that the total excavation for the canal would be 174,666,594 cu. yd. Each year this estimate increased, the estimate of July 1, 1914, reaching 238,845,587 cu.

yd., an increase of 64,178,993 cu. yd. over the estimate of 1908. For 35,158,225 cu. yd. of this increase, or more than 50 per cent., the slides in the Culebra Cut section were responsible.

Locks.—There are six double locks in the Canal, three pairs in series at Gatun with a combined lift of 85 ft., one pair at Pedro Miguel with a lift of 30 1/3 ft., and two pairs at Miraflores with a combined lift of 54 2/3 ft. The dimensions of all the locks are the same, each having a usable length of 1,000 ft. and a width of 110 ft. The depth of the water on the sills is 40 ft. in salt water and 41 1/3 ft. in fresh water. The mass masonry for all the locks was completed in May, 1913. The total amount of concrete in the locks on Aug. 1, 1914, was as follows: Gatun, 2,068,830 cu. yd.; Pedro Miguel, 928,267 cu. yd.; Miraflores, 1,507,765 cu. yd. The lock gates are steel structures, seven feet in thickness, 65 ft. long and from 47 to 82 ft. high. Intermediate gates are provided so that if desired lock chambers of 400 ft. and 600 ft. in length may be made. All gates at Pedro Miguel were completed on June 3, 1914, those at Miraflores on Jan. 17, and those at Gatun on Jan. 19. No vessel is permitted to enter or pass through the locks on its own power, but all are towed by electric locomotives running on cog-rails laid on top of the walls on each side of the lock chambers. The gates, the valves, and all other machinery employed in the operation of the locks are run by electricity. The time required to pass a vessel through all the locks is approximately three hours, and the time of passage of a vessel through the entire canal varies as a rule from nine to twelve hours.

Dams.—The construction of the great Gatun Dam, by which the valley of the Chagres River was converted into a lake, was one of the most essential and important features of the canal project. The dam is 8,000 ft. long, 2,100 ft. wide at the base, and 100 ft. wide at the top. The crest of the dam has an elevation of 105 ft. above mean sea level, or 20 ft. above the normal level of the lake. A hydroelectric plant has been installed at the dam, its turbogenerators supplying the current for running the machinery used in connection with the operation and maintenance of the canal. The dry fill on Gatun Dam was practically finished on Dec. 15, 1913, additional fill being made since only for grading purposes. The total fill to Aug. 1, 1914, was: wet, 10,728,965 cu. yd., dry, 12,195,017 cu. yd., a total of 22,923,982 cu. yd. Filling Gatun Lake to its final level began June 27, 1913, by closing the sluice gates in the spillway dam. By Dec. 29 the surface of the lake had attained a level of about 85 ft. above sea, at which it has since been maintained, regulated by the gates in the dam. The fill for Pedro Miguel Dam, which, extending from Pedro Miguel locks to the high ground to the westward, maintains the water level of Gatun Lake at the south, contained 695,938 cu. yd., all dry, and was completed in August, 1913. The dry fill for Miraflores Dam was finished in February, 1914, amounting to 1,758,423 cu. yd., in addition to the wet fill of 661,048 cu. yd., completed in December, 1911. The spillways, where the gates which regulate the height of the water in the lakes are installed, were all completed in 1913.

Culebra Cut.—The task of making the excavation through the highland was one of the most difficult problems in the construction of the canal. Not only was there an enormous amount of material normally filling the space to be occupied by the canal prism, but huge slides occurred on both sides of the cut, necessitating additional excavation of millions of yards. No less than 21 slides developed during the period of construction, varying in area from one to 55 acres. Water was finally admitted to the Cut in October, 1913, and since then the work of excavation has been done by dredges. On Aug. 1, 1914, there still remained 4,581,692 cu. yds. to be dredged from the Cut, practically all of which was due to slides. On Sept. 15, just a month after the canal was opened, a slide occurred north of Gold Hill, on the east side of the canal, blocking the channel with several thousand cubic yards of stone and earth. Within four days, however, a channel 150 ft. wide, with an average depth of 35 ft., was established and

the canal was again opened to traffic. Other slides have since caused minor interruptions.

Entrances.—The dredging of the Atlantic entrance to the Canal is practically completed. Two breakwaters are being constructed at Limon Bay, one of which, the Toro Point breakwater, is practically completed. At the Pacific entrance of the canal, the Naos Island breakwater extending from Balboa to Naos Island, a distance of 17,000 ft., is virtually finished. At both entrances modern coaling stations and fuel oil plants are nearing completion, and large steel piers with modern equipment are being constructed. At the Pacific entrance a large dry dock is in the process of construction.

Shops.—The permanent shops of the canal, consisting of 28 buildings, have been completed during the year and the machinery and equipment of nearly all the other shops previously established along the canal have been transferred to the new establishment.

Labor.—The number of employees in the working force of the Panama Canal on July 22, 1914, was 27,044; of the Panama Railroad Co., 5,314; and of the contractors, 79; a total effective force of 32,437. This was a decrease of 10,047 as compared with the working force of July 30, 1913.

Cost of the Canal.—The board of engineers which investigated the canal project in 1899-1901 estimated that the cost of construction, including sanitation and police, would amount to $144,233,458, and it was practically this sum that the Spooner Act authorizing the digging of the canal provided for. In 1906 the minority of the board of engineers which had under consideration the question of which type of canal should be built estimated that the cost of the work, carried out on the plans which they suggested, would be $139,705,200. Both these estimates, however, placed the cost of materials and wages at a much lower figure than it was found necessary to pay when work commenced. Various changes in the plan of construction caused an increase in the quantity of work to be done and unforeseen difficulties of construction arose to add still further to the cost. In February, 1909, a completely revised estimate placed the cost of engineering and construction at $297,766,000, adding to which the purchase price and the cost of civil government and sanitation brought the total cost of the canal up to $375,201,000. The total bond issue authorized by Congress for the construction of the canal amounts to $375,200,900. The total appropriations for the construction of the canal, including those for the fiscal year of 1915, amount to $361,974,861.58; the appropriations for fortifications, $12,050,775; and for the relief of private persons, $22,508.01. Of these sums, $20,718,000 for construction and $1,124,475 for fortifications were contained in the Sundry Civil Act approved on Aug. 1, 1914.

Up to June 30, 1914, the total receipts for canal purposes amounted to $360,920,975.27, including Congressional appropriations of $352,205,669.59 and miscellaneous receipts from the water rentals, the sale of government property, etc. The total classified expenditures for the canal up to June 30, 1914, amounted to $332,939,626, with the amounts for various items as follows: civil administration and law, $7,217,405; hospitals and asylums, $9,001,581; sanitation, $7,109,745; construction and repair of buildings, $1,148,472; department of construction and engineering, $211,295,071; general items, $90,374,263; fortifications, $6,793,090. Other expenditures brought the total net disbursements to $349,555,833.77, leaving a balance available on June 30, 1914, of $11,365,141.50. Nearly two-thirds of the total canal expenditures have been paid from current revenues, bonds having been issued only to the amount of $135,000,000.

XI. PUBLIC SERVICES

RICHARD C. HARRISON

FRANCHISES

The Indeterminate Franchise.—The indeterminate franchise with tenure to the grantee during good behavior continues to attract the favorable attention of the more progressive communities which are still in a position to control substantial franchise rights in their streets. In most of the so-called "home-rule" charters which have recently been drafted the indeterminate franchise is found either as a required or optional form of grant. During 1914 the most notable victory for this type of franchise was its optional acceptance in Indiana by one of the largest electrical corporations in the state in exchange for its existing franchise. A curious distrust of public-utility corporations appeared in the revision of the Dallas charter, which provided that even in the case of indeterminate grants the extreme limit should be 20 years.

Chicago.—The report of the street-railway company for the fiscal year ending Jan. 31, 1914, under the terms of the settlement ordinance of 1907, shows increasing prosperity and a large profit to the city. Its share amounted to $1,855,882, as against $1,413,404 for the preceding year. At the same time, the report shows that the investment in the plant is increasing at a rate which makes the exercise of the city's option of purchase an exceedingly remote possibility. On Feb. 1, 1914, the surface lines introduced a notable improvement in service and established a flat rate of fare of five cents to all parts of the city, with a universal transfer system. Several hundred new cars of an improved type were put in operation.

Cincinnati.—The Federal court has defeated the attempt of the City Council to compel the Cincinnati & Hamilton Traction Co. to establish a five-cent fare to Carthage and Hartwell, two suburbs of the city. The court held that the Company was in possession of indefeasible rights under its various franchises and was entitled to collect extra fares.

Dallas.—The revised charter voted on in January contains very interesting provisions for the regulation of franchises. The extreme term of future grants was fixed at 20 years even in the case of indeterminate franchises. Experience in other cities, notably New York, has shown that the placing of a short-term limit has had the effect of reducing applications for franchises to a point where service has suffered through lack of much-needed extensions. Other interesting provisions worked out by the Dallas Charter Committee are: provision for a referendum vote in all proposed indeterminate grants; authorization to the city to compel extensions of service; power to include in the franchise contract regulations fixing the character of service and the rates to be charged; provision for a city Department of Public Utilities; elimination of the fixed tax of 4 per cent. on gross revenues and provision that the city may, by contract, agree to accept a percentage either of the gross or net revenues and such other payments as may be fixed as consideration for the grant. The city is given broad powers of control over the construction of public utilities and over their maintenance. An important provision allows the city to require "adequate" as distinguished from "reasonable" service from street-car companies. Consolidation of the

Dallas street railways was provided for as part of the adjustment of existing difficulties with the companies. The original draft contained a provision prohibiting any street railway from entering into the business of supplying current for electric light, heat or power. This was eliminated from the final draft. No franchise submitted to the voters can become effective unless at least 25 per cent. of the electorate are recorded in its favor.

Des Moines.—At the city election on March 30 a proposed franchise for a mutual automatic telephone company was defeated on referendum vote.

Omaha.—For over four years the city of Omaha and the Omaha Electric Light & Power Co. have been in litigation over the status of the Company's franchises. The contention of the city was that the right of the Company to maintain structures in the streets had expired and the Council ordered the wires cut. The lower Federal courts sustained the city's view of the situation, but the Circuit Court of Appeals has now decided in favor of the Company, holding that its franchises are perpetual. During the year the City Council adopted an ordinance directing the local traction company to sell seven tickets for 25 cents. The railroad company promptly secured an injunction and the case is still in litigation.

St. Louis.—The franchise provisions contained in the home-rule charter adopted by St. Louis on June 30, 1914, in addition to granting full power to the city to run public utilities, further provide that in all franchise grants the city may include an option to purchase the plant of the grantee at the end of ten years from the date of the contract or at the end of any subsequent five-year term. Franchises are to be granted by the Board of Aldermen and not by the Board of Estimate as in New York City. To provide for full publicity, it is required that the Board of Public Service report upon a franchise application before the aldermen may vote upon it. Full power is given to the Board of Aldermen to regulate charges for service. Under the new charter a Complaint Board has been established to receive complaints against any public-utility corporation doing business in the city, or any municipal department, board, division, officer, or city employee, and to make remedial recommendations with regard thereto. (See also VII, *Municipal Government.*)

Indeterminate Franchises in Indiana.—The Indiana Public Utility Commission Act of 1913 (*A. Y. B.*, 1913, p. 294) permitted any company prior to July 1, 1915, to surrender its franchises and accept from the Commission in their place an indeterminate permit. During the year, one of the largest companies in the state, the Indiana & Michigan Electric Co., took advantage of this provision and surrendered its electrical franchises in South Bend, Mishawaka and Elkhart. The reason for the exchange is not entirely clear, although threatened taxation of franchises may have had much to do with it. One important effect of the Company's action was to subject its property to possible municipal purchase.

PUBLIC SERVICE COMMISSIONS

Defects of Regulation by Commission.—Owing to the practice of holding biennial sessions of the legislature in the majority of states, there was little change in the statutory regulation of public-utility commissions during 1914. No new commissions were created. The Colorado statute, however, which was in the doubtful class owing to its suspension by referendum petition, was validated through discovery of the illegality of the petition. Two new commissions, Illinois and Pennsylvania, began work on January 1. In the absence of new statutes, the chief interest centers in the shifting personnel of the various state bodies in existence. The strongest criticism leveled against public-service regulation by commission has always been that appointments would inevitably be dictated in the majority of cases not by fitness of the candidate but by personal and political considerations. This has unfortunately proved true. In New York

State, for example, each governor has appointed new and inexperienced men of his own party in place of commissioners whose records were good and whose only disqualification lay in their party affiliations; the year 1914 was no exception to the rule. The result is that the commissioners frequently lack technical qualifications and are guided more often by popularity than by principles either of economics or of law. A severe arraignment of the various commissions for their lack of consistent policy and intelligent administration was made during the year by Alexander C. Humphreys, president of Stevens Institute. It attracted considerable attention, not less because of the distinguished reputation of the author than for its bitterness. He expressed it as his mature opinion, based upon a varied experience as a technical expert adviser of public-service companies, that the commissions, both state and national, do not know what they are trying to do or how to do it, and that they are not giving corporations that instruction in their duties to the public which they were created to give and which the corporations have a right to expect. Point was given to the criticism during the year by the disclosures in the government investigation of the financing of the New Haven Railroad, in which it appeared that the Massachusetts Commission had allowed the Company to issue convertible bonds in a manner clearly contrary to the statutes of the state (see also XX, *Railroads*).

Another indictment equally severe was lodged against commission control by the Minnesota Home Rule League, an organization whose avowed purpose is "to promote the principles of home rule in the control and regulation of public utilities in Minnesota." In an elaborate pamphlet issued early in the year an attempt is made to show that the cities of Minnesota, notably Duluth and Minneapolis, have secured better service and lower rates under home rule than Wisconsin cities under state commission control. The document is interesting and important as presenting a strong *prima facie* case against what has generally been regarded as one of the strongest state public-service commissions. Among other interesting facts the report brings to light that as a practical matter the Wisconsin law has established an absolute monopoly of service in the hands of utility companies already in the field. The Public Service Commission has uniformly refused certificates to companies seeking to establish competition.

It is interesting in this connection to note the enthusiastic praise of regulation by commission contained in the annual report of the American Telephone & Telegraph Co., for the fiscal year ended Dec. 31, 1913. This company is avowedly interested in establishing a country-wide telephone monopoly and, naturally, is strongly opposed to government ownership. Its president in the last report declares government regulation by commissions of high standing to be "the greatest protection to the public interests as against private exactions that was ever devised."

With the passing of 1914 seven years' experience with the commission type of public-utility control has been completed in the United States. Each year, including 1914, has shown increasing complacency on the part of the corporations regulated. Beyond general criticism of commission inefficiency and ignorance of practical operating conditions, there has been little recent complaint from the companies. They have come to recognize that the statutes protect them in large measure from competition, and delay, if they do not prevent, government ownership. On the other hand, there was during the year increasing dissatisfaction with the effectiveness of commission control from a number of other sources. Advocates of municipal home rule are increasingly jealous of state commissions. Friends of municipal and state ownership are inclined to view commission control as an unsuccessful makeshift. Friends of good government everywhere are apprehensive of the ultimate complete subordination of the merit system of appointment of commissioners to political expediency. The consensus of opinion seems to be, however, that the commission type of control has many years to run in the United States

whatever the final solution of the public-utility regulation problem may be.

Colorado.—The legislature of 1913 adopted a strong Public Utilities Act, the operation of which was promptly suspended by petition for a referendum (*A. Y. B.*, 1913, p. 296). The Attorney-General of the state thereupon began an action against the Secretary of State to enjoin him from submitting the Act to referendum vote, alleging that a number of signatures to the petition were fraudulent and that the genuine signatures were less than the number necessary to validate the referendum. The courts decided in favor of the Attorney-General's contention and permanently enjoined the submission of the Act as a whole to the voters. The court decided, however, that a separate referendum petition on sections 35, 36 and 38 of the Act was valid and these sections were submitted to the voters at the November election. Their rejection would not affect the existence of the Commission but would greatly weaken its powers. Section 35 provides for the procuring of a certificate of public convenience and necessity from the Public Utilities Commission by a company seeking to engage in new business in the state, a provision found in all of the best public-utility statutes. Sections 36 and 37 provide for commission control of stock and bond business, mortgages and merger agreements. On Aug. 15 the new Commission assumed jurisdiction, superseding the former Board of Railroad Commissioners. The Governor appointed George T. Bradley to serve with A. P. Anderson and S. S. Kendall, two of the former railroad commissioners, as the new Commission.

Idaho.—The constitutionality of the Public Utilities Act of 1913 (*A. Y. B.*, 1913, p. 296) was attacked by the Idaho Power & Light Co., but sustained on June 27.

Illinois.—The Public Utilities Act of Illinois adopted by the legislature of 1913 became effective on Jan. 1. The Governor appointed as members of the Commission James E. Ivan, a wholesale grocer; Richard Yates, a lawyer; Frank H. Fink, Progressive candidate for governor of the state in 1912; W. A. Shaw, a civil engineer, and Judge O. P. Thompson.

As noted in the YEAR BOOK for 1913 (p. 296), the Act was adopted only after a bitter contest between the advocates of home rule for cities and the party in favor of general state control of public utilities. As a concession to the home-rule party, the provision of the Act as originally prepared giving the Commission power to regulate municipal plants was omitted. No provision was made for the repeal of various statutes which granted to cities broad powers over franchises. The right of the city of Chicago to regulate gas, electric-light and telephone rates was left unimpaired. There exists therefore considerable confusion as to the exact line of demarcation between state and local powers in a number of important matters. The Governor was urged to call a special session of the legislature to adjust these differences and to include municipal plants in the statute. The powers of cities to own and operate public utilities were so greatly enlarged by legislation in 1913 that it is probable there will be a considerable increase in this class of enterprise in the near future. The fight over the proposition to place them under state control is therefore unusually bitter. The new law does not affect the Chicago street-railway settlement ordinance of 1907. Advocates of home rule for Chicago hope for relief through a new city charter. On April 17, 1914, the City Council created a permanent charter committee of 30, consisting of 15 members of the Council and 15 citizens appointed by the Mayor to draft a charter "to confer upon the residents of Chicago and its environs a greater degree of self-government, including greater control of her public utilities." Any charter drafted, to become effective, must be enacted as a special state statute and ratified by the voters.

The city of Chicago established a City Telephone Bureau on the first of January to adjust complaints concerning rates and service. A report covering the first five months shows an adjustment by the bureau of 300 complaints which the telephone company had failed to settle without the

bureau's intervention. These include questions of rates, poor service, line monopoly and prepayment requirements. The bureau costs the city about $17,000 a year.

An important decision of the Illinois Supreme Court (Metropolitan West Side Electric Railway Company *v.* City of Chicago, 104 N. E. Rep. 165) holds that an elevated railroad is not a street railway within the meaning of the Illinois statute authorizing cities to regulate carriers using the streets and to fix their compensation. The court distinguished elevated roads from surface lines, which were conceded to fall within the statute, on the ground that the former had regular station stops. The decision means that these lines must be regulated, if at all, by the state Public Utilities Commission.

Louisiana.—Two public-utilities bills were before the legislature of 1914 but failed of adoption. One introduced by Representative Favrot provided for a general state commission; the other, introduced by Representative Manion, provided for a local board for New Orleans.

Massachusetts. — Governor Walsh recommended legislation transferring the burden of the support of the Public Service Commission from the state to the companies regulated. He estimated the saving at $200,000 annually. The legislature failed to approve the suggestion. During the year the laws relative to the manufacture, distribution and sale of gas and electricity were consolidated into one carefully revised statute.

New York.—This state with its two Public Service Commissions is a conspicuous example of the tendency toward allowing positions in these important regulative bodies to become political plums. Since the time of Governor Hughes, who named the original commissioners and who remained in office long enough to make two reappointments, no governor has seen fit to reappoint a commissioner at the expiration of his term. The year 1914 was no exception to the rule. On Feb. 1, 1914, the term of Commissioner Eustis of the First District Commission expired. Governor Glynn appointed George M. S. Schultz, who had on Jan. 1 assumed office as Surrogate of the newly created Bronx County. After a delay of several weeks Mr. Schultz announced that he considered himself pledged to serve out his term and declined the appointment. The Governor on May 19 appointed Robert C. Wood, a former president of the New York City Interborough Railroad Co., a surface railroad in the Bronx, to fill the vacancy. The retirement of Commissioner Eustis leaves only one of the original Hughes commissioners in office. The Commission has been severely criticized for making a number of important appointments of subordinates on a political basis.

To the vacancy in the Commission for the Second District the Governor appointed a distinguished lawyer, Seymour Van Santvoord. Soon after this appointment Chairman Martin S. Decker had occasion to differ with his colleagues over an offer by the New York Telephone Co. to bear the expense of a proposed investigation into its rates. He resigned the chairmanship though retaining his commissionership. Commissioner Van Santvoord was appointed chairman in his place.

Two other vacancies in the Second District Commission were filled by the appointment of William T. Emmet, a former state Superintendent of Insurance, and Frank Irvine, dean of Cornell University Law School.

On June 1 the First District Commission began the publication of a monthly journal, the *Public Service Record*, which is intended to present a popular account of the Commission's work. The paper is distributed free to all employees and to newspapers and others interested.

Pennsylvania.—The Public Service Commission created by the legislature of 1913 assumed control on Jan. 1. The Commission has voluntarily greatly limited its powers by holding that it has no jurisdiction over the corporate acts of companies which obtained charter powers prior to July 26, 1913, the date of the passage of the Act. In the case of the Pennsylvania Utilities Co. *v.* Lehigh Navigation Electric Co. the Commission held that since the defendant company had been incorporated prior to the passage of the public-utilities law and had provided

in its charter that it should do business in certain townships in Northampton and Monroe counties, it had no jurisdiction to prevent the Company from exercising its charter rights even though to do so would create undesirable competition with an existing company.

The Commission begins its work with another hampering condition due to legislation during the session of 1913. In 1905 it was provided that the Court of Common Pleas of the proper county should dispose of all disputes as to the reasonableness of the amount of license fees charged by municipal corporations for the privilege of operating telegraph, telephone or light or power service. Despite the fact that a Public Service Commission was created to assume general control in 1914, the last legislature extended the license-fee control of the courts to include street passenger-railway, motor-traction, gas and water companies.

West Virginia.—The state courts have greatly strengthened the Public Service Commission by holding (United Fuel Gas Co. *v.* Public Service Commission) that the orders of the Commission are not reviewable by the courts except upon the ground of constitutionality or *ultra vires* or upon allegation that the statute has been misinterpreted.

Status of Public-Service Commissions.—A list of state public-service commissions in existence at the close of 1914 is given on another page (see XX, *Railroads*). The following city commissions regulate public utilities: New York, Seattle (single commissioner), Los Angeles, Houston (single commissioner), Wilmington, St. Paul (one member of city commission).

MUNICIPAL OWNERSHIP

Strength of the Movement.—Municipal ownership has more than held its own in the United States during 1914. Although the returns look small compared with Berlin's reported profit of $4,000,000 for its municipal gas works during 1913, nevertheless the experience of the more important municipal-ownership experiments, as shown in reports published during the year, is uniformly favorable. California in particular seems to have been unusually successful and to be about to embark on a program of municipalization of public utilities on a large scale. Most of the city charters adopted during 1914 permit municipal ownership of practically all classes of public utilities. Owing largely to the European War and the resultant rise in the prices of foodstuffs, there has been a notable increase in the activity of our cities in the establishment and improvement of municipal markets. Not only have a number of new city market plants been established but in addition much has been done to bring the producer and consumer closer together through municipal assistance.

The first general conference of mayors from all over the United States, held at Philadelphia in November, passed resolutions generally unfavorable to the extension of municipal ownership beyond the limits usually found in the larger American cities. During the same month the committee of the American Federation of Labor, which had been investigating municipal ownership in European cities, reported unfavorably.

Public-Utility Districts in California.—Statutory provisions for public-utility districts are rare in this country. Although authority for the combination of cities, villages, counties and other political divisions in a joint government-ownership plan has been in effect in California for a number of years, it has not been availed of to any considerable extent. During the year an interesting experiment on a large scale of joint ownership and operation of interurban trolleys has been under consideration and will probably soon be put into effect. The cities and towns of Alameda and Contra Costa counties have been confronted with a serious situation owing to the embarrassed condition of the Oakland & San Francisco Terminal Railways and the United Properties Co. To prevent these properties falling under the control of the Southern Pacific Railroad with a resulting monopoly in transportation facilities, it is proposed to organize

the two counties into a public-utility district managed by 19 trustees consisting of the mayors and representatives of Albany, Emeryville, Haywards, Piedmont, San Leandro, Berkley and Oakland, and the chairmen of the boards of county supervisors of Alameda and Contra Costa counties. The direct control of the railroad is to be placed under three commissioners elected by these trustees. The latter are to act without salary and are to fix the compensation of the managing directors. The experiment will be watched with great interest.

Michigan.—After a formidable fight by the opponents of municipal ownership, the Verdier Act which grants to Michigan cities wide powers of home rule in charter making and revision has been sustained in the state Supreme Court (Attorney-General *v.* Lindsay, 145 N. W. Rep. 98). The Act permits cities to incur a municipal debt of 2 per cent. of the assessed valuation of property for the purpose of acquiring public-utility plants. The decision will undoubtedly stimulate municipal ownership in the state.

Akron.—The street-railway franchise of the Northern Ohio Traction & Lighting Co. will expire in 1925. The Company has sought to secure a longer term as the price of granting very much needed extensions. The City Council has steadfastly refused the Company's terms and finally in the spring of 1914 voted unanimously for a bond issue of $225,000 for a municipal line. The city contemplates taking over the private lines on the expiration of the franchise.

St. Louis.—On June 30 the city adopted its first home-rule charter by a vote of 46,839 to 44,158, superseding the charter of 1876. The new charter removes the former prohibition against municipal ownership of public utilities. An interesting provision is the power given the city to issue bonds and notes secured solely by lien upon the property and earnings of a city-owned utility. Full regulative powers are granted the city over private utilities, including the power to order extension of facilities as required.

San Francisco.—San Francisco's first municipal street-railway line has been in operation since Dec. 28, 1912, when the Geary Street road was opened from Kearney Street to Thirty-third Avenue (*A. Y. B.*, 1913, p. 303). On June 24, 1913, an extension was opened to the ocean, making the entire line a little over 7½ miles of double-track road. On Dec. 11, 1913, the city added to its holdings almost four miles of road by the purchase of the Union Street line of the Presidio & Ferries Railroad, whose franchise had expired. On April 6, 1914, ground was broken for a new municipal line on Van Ness Avenue from Market Street, the main business thoroughfare, to Fort Mason and the grounds of the Panama-Pacific International Exposition of 1915. This line will be almost four miles long. Several smaller subsidiary lines are under contract pursuant to the vote of Aug. 26, 1913, which appropriated $3,500,000 for new municipal lines. The first report of the Geary Street line, covering the fiscal year ended Dec. 31, 1913, shows operating revenues of $444,747.73 and operating expenses of $291,431.36, with an apparent profit of $85,345.80. A careful examination shows, however, that this item includes credits which are not properly profits and that the actual net profit is $45,304.47. The Union Street line is making even a better showing. It cost only about one-sixth as much as the Geary Street line. In March, 1914, it averaged a revenue of $958 per day, as compared with $1,902 for the Geary Street road. The roads are all operated by employees selected from civil-service lists.

Tacoma.—On Dec. 30, 1913, the voters of Tacoma rejected a proposal to issue $87,000 in city bonds for the construction of a much-needed street railway from the business district to the so-called tide-water lands. The Tacoma Railway & Light Co. offered to build the road, though it considered it a losing venture, if it could secure a satisfactory franchise. The city was not willing to agree to the terms proposed.

Toledo.—On Aug. 4, by a vote of 10,597 to 9,409, Toledo voted in favor of municipal acquisition of the street railways at an estimated cost of $8,000,000. This action was the culmination of a long agitation for three-cent fares. The point was immedi-

ately raised by opponents of municipal ownership that the proposal was lost in that it required a two-thirds vote for adoption. This fact, coupled with the lack of an agreement with the street-railway company as to the purchase price, is likely to delay municipal ownership for a considerable time. The Company claims that its plant is worth a great deal more than $8,000,000 and that a three-cent fare would be confiscatory. The Company offered at one stage in the fight to allow the city to try to operate the road with three-cent fares for a test period. Owing to the conditions imposed this offer was not accepted.

Washington, D. C.—Municipal ownership of public utilities in the District of Columbia has received consideration by Congress a number of times. During the second session of the present Congress the Crosser bill, providing for government acquisition of the street railways in the District, was reported favorably by the District Committee of the House by a vote of 9 to 8. The bill received the unqualified approval of the commissioners of the District. It provided for condemnation at a valuation to be fixed by a board of appraisers and payment of the award by the issue of 30-year bonds bearing 3.65 per cent. interest. The bill failed of passage.

Municipal Journals. — During the year two cities took steps to establish municipal journals. Cleveland established a *City Record* to be published, distributed and sold under the control of the City Council. The journal is under the immediate direction of the Commissioner of Information and Publicity. St. Louis is investigating other city publications with a view to establishing one of its own. The sentiment of the Board of Freeholders appears to be in favor of a publication on the lines of the Boston *City Record.*

Municipal Markets.—On Dec. 30, 1913, there appeared a voluminous report presented to the Mayor of New York by the so-called Mayor's Market Commission, composed of three members of the Board of Estimate and Apportionment and an advisory body of 22 citizens appointed by the Mayor to represent various phases of the market problem. The report is of considerable general interest owing to its numerous appendices, which contain valuable information concerning the market situation in the United States. Among other important articles are those on public markets in American cities by the Secretary of the San Antonio Chamber of Commerce, a summary of information concerning various foreign markets prepared by Mrs. Elmer Black, and a valuable bibliography of markets compiled by Charles C. Williamson, chief of the Division of Economics and Sociology of the New York Public Library. The report recommended the establishment in New York City of a Department of Markets as one of the administrative departments under the Mayor. This department was to be governed by a board of market commissioners, one from each borough, and was to have not only full charge of the management of the public markets which it was proposed to establish but also broad powers of investigation for the purpose of securing information useful in bringing together producers and consumers. It was proposed to make this information widely available. The report further recommended the establishment of a wholesale terminal market in each of the five boroughs of the city. At these markets it was proposed to conduct auction sales through bonded auctioneers licensed by the city to whom goods could be consigned by persons desiring to sell their products at auction. Legislation was introduced at Albany to carry the recommendations of the Commission into effect, but was defeated because of its mandatory character, the city being unwilling to submit to the compulsory establishment of the proposed department. During the year an effort has been made to reduce the cost of living by the establishment of four so-called "farmers' markets" at different points in the Borough of Manhattan. These markets are nothing more than vacant spaces of city land which have been set aside for the purpose, the use of which is permitted under proper regulations entirely without cost to farmers and others desiring to sell foodstuffs. They were opened under the supervision of the President of the Borough of Manhattan, chairman

of the Committee on Markets of the Board of Estimate and Apportionment, on Sept. 1.

A number of other cities have made important improvements in their market systems during the year, notably Pittsburgh, Topeka, Chattanooga, and Gary, Ind.

Municipal Slaughter Houses.—Closely connected with municipal markets are municipally owned facilities for slaughtering cattle. This is a city activity which has reached a high degree of efficiency in Europe, notably in Germany, where no less than 43 public abattoirs are conducted by the 50 largest cities in the Empire. These cities require all meat sold within their limits to be slaughtered at the city plant under municipal sanitary control. In the United States public abattoirs are conducted by Montgomery, Ala., Nashville, Tenn., Dubuque, Ia., Los Angeles, Cal., and one or two other towns. In 1914, Grand Forks, N. D., was added to the list. A model structure of brick and concrete has been built and completely equipped. A city ordinance requires all meat sold in the city to pass through this abattoir except such as has been passed upon by the government inspectors.

Taxation of Municipally Owned Public Utilities.—An extremely interesting decision upon the right of the state to tax municipally owned public utilities was decided in favor of the city's exemption from taxation by the Virginia Supreme Court of Appeals (Commonwealth *v.* City of Richmond, 81 S. E. Rep. 69). The state tried to enforce the payment of taxes on certain revenue-producing utilities of the city of Richmond, including the market houses, the water and gas works. The city contested the matter and was finally sustained in a carefully considered opinion of much more than local interest.

WATER SUPPLY

The year 1914 has not been notable by reason of the initiation of new plans for water supply on a large scale. The New York Ashokan system has progressed rapidly and all that remains to be done is comparatively simple finishing work. The same may be said of the Los Angeles project. Municipalization of private plants continues uninterruptedly.

New York City.—On Jan. 12 Mayor Mitchel fired the shot which officially completed the blasting for the Ashokan Aqueduct tunnels under the city of New York. These range from 11 to 17 ft. in diameter and extend for 17½ miles through solid rock. Despite the 250,000,000 gals. daily supply which will be available with the completion of this water system, the city has already begun to seek additional sources of supply. During the year preliminary negotiations were begun with the state authorities to permit the purchase by the city of the entire Schoharie watershed, including the upper waters of Schoharie Creek and a number of streams tributary to the Mohawk River. The state has not yet granted its consent, owing to doubts as to the effect upon the State Barge Canal, which is nearing completion.

Baltimore.—This city has added a storage capacity of 2,000,000,000 gals. to its water system, through the completion of a new dam at Lock Raven.

Cleveland.—Early in the year the city voted a bond issue of $1,300,000 for the construction of a filtration plant.

Denver.—The water situation in Denver continues in a very confused state. The franchise of the Denver Union Water Co. has expired and on May 17, 1910, the city voted not to extend it. Since that time possible terms for the purchase of the plant have been discussed. On Feb. 17, a tentative agreement was submitted to the voters for approval and rejected. At the same election the city voted an issue of $3,000,000 in bonds to aid in the construction of the so-called Moffat tunnel through the Rocky Mountains (*A. Y. B.*, 1913, p. 578). This project was begun by the Denver, Northwestern & Pacific Railroad. The city is to own the tunnel until principal and interest have been repaid. One of the chief moving considerations for the city loan is the provision that the city may use part of the tunnel to carry water from the other side of the divide into Denver.

Des Moines.—On March 30 Des Moines voted upon a proposed bond issue of $2,302,000 for the municipalization of the plant of the Des Moines Water Co. Although the proposition to purchase the plant was voted upon favorably by 11,362 and adversely by 9,286, the plan failed of adoption, owing to the fact that upon the question of the bond issue the vote was 7,535 in favor to 4,993 against. This curious result was probably due to the confusing character of the ballot.

Louisville.—The city draws all of its water from the Ohio River. In 1909 extensive filtration works were opened with a daily capacity of about 35,000,000 gals. In August, 1914, the capacity of the filters was doubled by extensions to the original plant.

LIGHTING

Progress in lighting throughout the United States has been steady during 1914, a number of cities having greatly extended this service. The chief interest lies, however, in the efforts of a number of cities to secure reduced rates.

Cleveland.—On May 1 the municipal electric plant reduced the rate for current to three cents per kw.-hour. The officials report a rapid increase in the number of consumers and operation at a substantial profit.

Los Angeles.—On Feb. 20 the local gas companies discontinued the supply of natural gas in the city limits. A complaint to the Public Service Commission was ineffectual, the Commission holding that it was without jurisdiction to compel service.

Longmont, Col.—An interesting experiment in supplemental street lighting has been made in this city during the year in connection with the municipal electric-light plant. Each householder is allowed free current for one 40-watt tungsten porch light during the hours when street lights are maintained. It is claimed that the saving will more than carry this expense.

Minneapolis.—Minneapolis is one of the cities which is trying to handle its public-utility problems without the aid of a state commission. The City Council has fought for a number of years to cheapen the price of gas. In 1895 it was fixed at $1.50 per 1,000 cu. ft., in 1910 at 85 cents, and on Sept. 1, 1913, at 70 cents. The latter rate was adjusted after a careful study and upon the advice of Professor Marks, a recognized expert. The gas company claimed, however, that the rate was confiscatory. To avoid a legal fight the Council agreed to a compromise settlement to cover a five-year period. From Nov. 1, 1913, to April 1, 1914, the rate was fixed at 70 cents as provided in the original ordinance. For the following 21 months the rate was raised to 80 cents, and for the next 34 months it was fixed at 77 cents, making an average for the settlement term of 77.46 cents. The candle power was reduced from 18 to 15 as a further concession to the company.

St. Paul.—Following the lead of Minneapolis, the City Council passed an ordinance reducing the price of gas from 90 cents per 1,000 cu. ft. to 85 cents. The gas company immediately attacked the ordinance in the courts as confiscatory and obtained a temporary injunction restraining its enforcement. The court required the Company to file a bond to protect consumers in the matter of refunds in the event of an ultimate decision sustaining the ordinance.

SEWAGE AND REFUSE DISPOSAL

The most noteworthy event affecting sewage disposal during 1914 was the appearance of the final report of the Metropolitan Sewerage Commission of New York City. This commission on April 30 brought to a close the most careful study of sewerage problems and the effect of pollution of harbor water which has been made in the United States, if not in the world. Its report and statistical data are of international interest.

New York, Chicago and Philadelphia have all made important contributions during the year to the scientific study of refuse disposal and street cleaning. There is a growing recognition of the necessity for the

application of the highest type of efficiency engineering to these problems and of their importance in connection with the comfort and health of the community.

Chicago.—The methods of refuse disposal in Chicago have been growing more unsatisfactory with the increasing size of the city. In 1914 the City Council employed Irvin S. Osborn of Cleveland and John T. Fetherston, the Commissioner of Street Cleaning of New York City, to make a survey of the situation and suggest plans for improvement. In May they submitted a comprehensive report. Their chief recommendations were that the city should own and operate a complete refuse collection and transportation equipment and refuse disposal works. They advised the passage of an ordinance compelling householders to separate wastes into garbage, ashes and rubbish, and that the city provide for daily or at least tri-weekly collections. They recommended the treatment of garbage by reduction at a centrally located water-front plant. Ashes should be used, according to the report, for filling low areas owned by the city. Small incinerators for rubbish at loading stations were recommended. Sorting to reclaim saleable material was favorably reported. The report is a carefully prepared document of much more than local interest. It was passed upon favorably by the City Council and a beginning has been made to put its recommendations into effect.

Philadelphia.—The city has established a sanitary police squad assigned to the Bureau of Highways, consisting of seven patrolmen, one assigned to each highway district. These men are to prevent scattering of wastes through the operations of scavengers and to enforce the Housing Act of July 22, 1913, which requires householders to provide non-leakable ash receptacles of approved standards. The city has distributed "Call for Waste" cards designed for hanging in the window to call for collection of refuse other than ashes. During the year an active educational campaign to secure the coöperation of householders and school children was carried on by means of addresses at public meetings, women's clubs and at school assemblies. Badges are issued to school children who are willing to become volunteer inspectors.

Cincinnati.—In February, 1912, the City Council voted $125,000 for a thorough investigation and survey of existing conditions in the city's sewerage system and $55,000 for the preparation of sewerage plans. A very comprehensive report was issued on Dec. 31, 1913, giving the results of this study, including a survey of almost 500 miles of sewers. The report recommends extensive improvements, including replacements and additional facilities. A number of these new projects were begun during the year.

Cleveland.—Early in the year the city voted $1,200,000 for the construction of an extensive sewage disposal plant.

New Orleans.—In view of the widespread difference of opinion as to the relative cost and efficiency of work done by cities with their own forces and through contracts, the investigation made in New Orleans during 1914 into the cost of city-built sewers is interesting. In December, 1913, the Sewerage and Water Board, in response to attacks made by the advocates of the contract system, appointed a disinterested committee to investigate. Their report strongly favors the method of direct construction by city labor and is highly complimentary in its review of the cost and efficiency of the work already done by this method.

New York City.—With the advent of the new administration on Jan. 1 the Mayor appointed John T. Fetherston, a street-cleaning expert with a national reputation, to the office of Commissioner of Street Cleaning. He began at once with a thorough reorganization of the department on scientific lines. One of the first reforms instituted was to work out in coöperation with the Commissioners of Accounts a thorough system of unit costs. One of the heaviest districts in the city was selected by the Commissioner as a model district for experimental purposes. An important reform in refuse disposal has been begun in substituting substantial steel and concrete covered dumps at waterside stations for the former unsightly and unsanitary open pier

dumping boards. Studies in snow removal indicate a very great saving in cartage cost through the use of city sewers. It has been found that by careful inspection these may be utilized for the disposition of a very large quantity of snow without danger of clogging with solid matter. As the snow-removal bill of New York City frequently runs to several million dollars, the economy is important. The city is contemplating the extension of its facilities for incinerating refuse.

Metropolitan Sewerage Commission.—On May 1, under the provisions of the statutes creating it, the Metropolitan Sewerage Commission, which has been studying the problem of sewage disposal in New York City for the last eight years, went out of existence. It submitted to the Mayor as its final report a formidable volume of almost 800 pages containing a review of its work and its final conclusions. The Commission finds a condition in New York harbor which, in its opinion, calls for immediate relief. It recommends the construction by the city of New York of an elaborate system of main drainage sewers and disposal plants, including a "sewage island" off the coast near Coney Island, to which sewage may be pumped for purification. It recommends that this system, estimated to cost over $21,000,000, be constructed under the supervision of a special commission modeled on the New York Water Board which has been engaged in constructing the Ashokan water system and similar to Boston's Metropolitan Sewerage Commission. The report further recommends the creation by joint action of Congress and the legislatures of New York and New Jersey of a Metropolitan Sewerage District to comprise about 700 sq. miles of territory draining into New York Bay and vicinity, and including about 80 separate municipalities. This proposed district produces in excess of 765,000,000 gals. of sewage a year. It is suggested that this district be placed under the control of a Sanitary Supervisory Commission made up of representatives of the Federal Government and the states of New York and New Jersey. This board, according to the report, should have power to establish standards of cleanliness for waters within the district and control the discharge of sewage into them. The report contains a mass of valuable scientific data and valuable and interesting appendices on such subjects as sewage utilization and sewage purification.

Pollution of Delaware River.—The New Jersey Board of Health has been carrying on a vigorous campaign to prevent the pollution of the upper waters of the Delaware. During the year an important injunction was obtained, preventing Phillipsburg from discharging sewerage and refuse into the river. The case has served as a precedent to compel a number of other towns and villages to discontinue the sources of pollution. It is the object of the health authorities to make the water safe for domestic use.

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XII. MILITARY AND NAVAL

THE ARMY

ROBERT B. MCBRIDE

ADMINISTRATION

Progress of Reorganization.—The methods directed by the Army Appropriation Act of Aug. 9, 1912, have now been used about two years (*A. Y. B.*, 1912, p. 292; 1913, p. 307). During this time the attention of the War Department has been principally devoted to the perfection of the machinery, the correction of defects in details, and energetic efforts to carry out the general scheme in all its parts in accordance with the provisions of the Act. Some of the questions raised by the General Staff in 1912 have not as yet received any definite Congressional settlement, notably the payment of the militia, the rearrangement of posts and stations, and the provision of an adequate trained reserve force. The proper period of service with the colors is still a subject of much argument; so far as the records of enlistments and reënlistments will illuminate this question, the present time of active service does not, apparently, present any great difficulties; but it cannot be stated that any appreciable progress has been made toward building up a dependable reserve.

The organization of separate field commands, as differentiated from the administration of geographical departments, has been practically perfected with the means at hand, and has proved wholly beneficial; and, after two years' experience, the consolidation of the Quartermaster, Pay and Subsistence departments into the Quartermaster Corps has been found most advantageous to the service and to the country.

The benefits arising from the limitation of details to four-year periods and the insistence upon two years of actual service with troops in every six have been so apparent in the case of officers below the rank of major, that Congress during the year extended the provisions of the law to include field officers. Some difficulties occur in meeting the needs of both line and staff, but in a few more years a large number of officers of the line, both field and company, should be fairly trained in the duties of the different staff corps; and at the same time, officers on detail in staff corps will not have been separated from the line for a long enough time to endanger their sympathy with and understanding of the needs of the line of the Army.

The Administration has firmly discouraged the injection of political influence into the internal control and discipline of officers and men. The service has been informed in unmistakable terms that efforts to influence such matters by outside pressure, if made with the knowledge and consent of the officer concerned, will be officially noted upon records.

War Department. — Major-Gen. Leonard Wood was relieved from the duties of Chief of Staff on April 22, having served since April 22, 1910. He was succeeded by Major-Gen. William W. Wotherspoon, who had been serving as Assistant Chief of Staff and Chief of the Mobile Army Division. By the same order Brig.-Gen. Hugh L. Scott, then commanding the Second Cavalry Brigade on duty along the Mexican Border, was detailed as a member of the General Staff Corps and assigned to the post vacated by General Wotherspoon. On Nov. 16,

AUTHORIZED STRENGTH OF THE ARMY

	Major-Generals	Brigadier-Generals	Colonels	Lieutenant-Colonels	Majors	Captains	First Lieutenants	Second Lieutenants	Chaplains	Total Commissioned Officers	Enlisted Men
General officers	6	15	....	....	....	.....	.....	.....	....	21	.....
Adjutant-General's Department	....	1	5	7	10	.....	.....	.....	....	23	.....
Inspector-General's Department	....	1	3	4	9	.....	.....	.....	....	17	.....
Judge-Advocate General's Department	....	1	2	3	7	.....	.....	.....	....	13	.....
Quartermaster Corps	1	2	12	18	48	102	.....	.....	....	183	403
Medical Department	....	1	14	24	105	205	254	.....	....	603	.....
Corps of Engineers	....	1	14	21	47	57	53	43	1	237	1,942
Ordnance Department	....	1	6	9	19	25	25	.....	....	85	745
Signal Corps	....	1	1	2	6	24	72	.....	....	106	1,472
Bureau of Insular Affairs	....	1	1	....	1	.....	.....	.....	....	3	.....
Fifteen regiments of cavalry	....	....	15	15	45	225	225	225	15	765	14,148
Six regiments of field artillery	....	....	6	6	12	66	78	78	6	252	5,513
Coast Artillery Corps	....	1	14	14	42	210	210	210	14	715	19,019
Thirty-one regiments of infantry	....	....	30	30	90	461	460	460	31	1,562	34,719
Military Academy	....	....	4	3	....	.....	.....	.....	....	7	.....
Additional and detached officers	....	....	38	9	27	82	74	.....	....	231	.....
Additional and detached enlisted men	....	....	....	....	....	.....	.....	.....	....	.....	7,297
Indian Scouts	....	....	....	....	....	.....	.....	.....	....	.....	75
Total Regular Army	7	26	165	166	468	1,457	1,451	1,016	67	4,823	85,965
Philippine Scouts	....	....	....	....	....	52	65	65	....	182	5,733
Aggregate	7	26	165	166	468	1,509	1,516	1,081	67	5,005	91,698

Major-Gen. Wotherspoon was retired, having reached the age limit. Brig.-Gen. Scott was appointed Chief of Staff, and the vacancy in the list of major-generals was filled by the promotion of Brig.-Gen. Frederick Funston. Brig.-Gen. Tasker M. Bliss, in command of the troops on the Mexican border, succeeded General Scott as Chief of the Mobile Army Division.

Brig.-Gen. George H. Torney, Surgeon-General of the Army, died on Dec. 17, 1913; and on Jan. 16 Col. William C. Gorgas, Medical Corps, who had been in charge of the sanitary work on the Isthmus of Panama, and who was then engaged in the Union of South Africa, by the consent of the United States Government, in sanitary plans for the Government, was promoted to be brigadier-general, and appointed Surgeon-General of the Army.

Brig.-Gen. W. H. Bixby, Chief of Engineers, retired on Aug. 11, 1913; Col. D. C. Kingman, engineer officer of the Savannah District, was promoted to be brigadier-general and appointed Chief of Engineers on Oct. 12, 1913.

Brig.-Gen. George Andrews, the Adjutant-General, retired on Aug. 26, and Col. Henry P. McCain was appointed brigadier-general and Adjutant-General of the Army on Aug. 27.

Organization Tables.—On Feb. 25 complete "organization tables" were issued to the service. These tables were prepared by the General Staff Corps. They are in comprehensive detail for all branches of the service and for all organizations, including tactical organization of armies, brigades and smaller units, with trains and auxiliary or divisional troops; numbers of commissioned and enlisted personnel for every grade, during both peace and war; amount, character, transportation and distribution of ammunition; and number, transportation and distribution of rations and other supplies. The peace organization is so prescribed that expansion to full war strength may be readily effected with no disarrangement of the

machinery. For war, the following proportions of the different arms and staff corps in infantry divisions are prescribed: for every 1,000 infantrymen: 75 cavalrymen; 2.82 guns (field artillery); 2.35 guns (machine); 30 engineer troops; 10 signal troops; 54 sanitary troops; 23 Quartermaster Corps men.

In a cavalry division, the proportions are: for every 1,000 cavalrymen: 3.11 guns (field artillery); 3.11 guns (machine); 38 engineer troops; 22 signal troops; 65 sanitary troops; 36 Quartermaster Corps men.

Six thousand enlisted men of the Quartermaster Corps, and 4,012 enlisted men of the Hospital Corps, are, by law, not counted in the strength of the Army. They are, however, a part of the military forces, and bring the authorized aggregate up to 106,715 officers and men. The actual total aggregate on June 30, 1914, was 97,760 officers and men.

Authorized Strength and Distribution.—The troops described in the accompanying table of the authorized strength of the Army are organized into three infantry divisions, a cavalry division, the First Hawaiian Brigade, garrison troops in the Philippine Islands, and three Coast Artillery districts. Troops of the Second Division are at Galveston and Texas City, Tex., and are commanded by Major-Gen. J. Franklin Bell; a reinforced brigade, consisting of the 4th, 7th, 19th and 28th regiments of infantry, a battalion of the 4th Field Artillery, troops I and K of the 6th Cavalry, Company D of the Signal Corps, Company E of the Engineers, and Field Hospital No. 3, commanded by Brig.-Gen. Frederick Funston, was sent to Vera Cruz, Mexico, on April 24, relieving the sailors and marines who had been holding the town since April 21. These troops, having been ordered to the United States, left Vera Cruz on Nov. 23. (See I, *American History.*)

The First Division, with headquarters at Governor's Island, New York, is commanded by Major-Gen. Leonard Wood, who also commands the Eastern Department; the Third Division and the Western Department, with headquarters at San Francisco, are commanded by Major-Gen. Arthur Murray; the Cavalry Division, on duty along the Mexican border, and the Southern Department, with headquarters at Fort Sam Houston, Tex., are commanded by Brig.-Gen. Tasker H. Bliss. Major-Gen. Thomas H. Barry commands the Philippine Department, and Major-Gen. William H. Carter commands the Hawaiian Department. The North and South Atlantic Coast Artillery districts include all the coast forts on the Atlantic and Gulf coasts, and are in the Eastern Department; the Pacific Coast Artillery District includes the coast fortifications of the Pacific coast, in the Western Department. The Central Department headquarters are at Chicago. Organizations are distributed as follows:

	Infantry Regiments	Cavalry Regiments	Field Artillery Regiments	Coast Artillery Companies	Engineer Companies	Signal Corps Companies	Philippine Scouts Battalions
United States	17⅓	12½	3½	145	8	8	....
Philippine Islands	4	2	1	11	2	2	12
Hawaii	3	⅓	1	8	1	1	....
Porto Rico	1	....	....	....	....	....	....
Panama Canal Zone	1	....	....	6	....	....	....
Mexico	4	⅙	½	....	1	1	....
China	⅔	....	....	....	....	....	....
Totals	31	15	6	170	12	12	12

Legislation.—The only important legislation affecting the Army as a whole passed during the year was contained in the Army Appropriation Act. One item, providing for the regulation of details to staff corps or departments in the case of field officers, has been described above. An act to increase the efficiency of the aviation service, approved on July 18, is considered in a subsequent paragraph. (See also XXI, *Aeronautics.*)

Appropriations.—The military appropriations come under various acts, as indicated in the following table of the appropriations for the fiscal year 1915:

Army Appropriation Act...	$100,802,018.28
Fortification Act.....	5,892,700.00
Sundry Civil Act.....	4,002,382.95
Military Academy Act.....	1,002,130.94
Legislative, Executive and Judicial Act.....	1,836,128.00
Total.....	$113,535,360.17
DEDUCT:	
Sundry Civil Act (national cemeteries).....	$219,870.00
Army Appropriation Act, Encampment and Maneuvers, Organized Militia	1,250,000.00
Field Artillery, Organized Militia.....	5,100,000.00
Coast Artillery, Organized Militia.....	100,000.00
Alaska roads.....	125,000.00
Alaska cable and telephone systems.....	50,000.00
	$6,844,870.00
	$106,690,490.17
DEDUCT ALSO:	
Fortification Act.....	$5,892,700.00
Military Academy Act...	1,002,130.94
	$6,894,830.94
Leaving for the Regular Army.....	$99,795,659.23

Recruiting.—There were 168,527 applications for enlistment during the year up to Oct. 20, of which 41,871, or about one in four, were accepted and enlisted; 12,507 men reënlisted, and 29,364 were new recruits; of the latter class, only about one in five was accepted. In the Philippines Scouts there were 1,718 new enlistments, and 1,842 reënlistments.

Military Resources.—The Regular Army has at present approximately 87,000 officers and men, and the Organized Militia about 128,000, a total of about 215,000 organized, armed and equipped. This force is fairly well supplied with everything needful with the vital exception of field and siege artillery material and ammunition. The plan for accumulating reserve supplies is being logically followed, and all the supply departments and corps are working toward the desired end. The reports of the adjutant-general of the states at the close of the last inspection season showed an unorganized militia of practically 15,500,000. This figure is too low, as several unmistakably erroneous returns were made, and the census of 1910 gave about 20,000,000 males between 18 and 44 years of age. From the best information, it is probable that about 16,000,000 could be rightly estimated as available for military service. Under the present regulations for admission to the Army and applying the proportion of rejections shown by the recruiting records, only one-fifth would be accepted, or, in round numbers, 3,200,000. Added to the present organized forces, an army of 3,415,000 could be raised, and if recruiting rules were somewhat relaxed, these figures might very well be doubled or tripled, without getting many of the weak and undesirable.

THE REGULAR SERVICE

Troops on Active Service.—Conditions have remained so unsettled in Mexico that it has been necessary not only to retain troops on the international boundary and at Texas City, but, as noted above, it became the duty of the Administration to send a reinforced brigade to Vera Cruz to relieve the naval forces. This force found affairs in excellent order, considering the short time the town had been occupied by the Americans, but there was much work at hand in sanitation and civil administration and in instilling confidence in the minds of the inhabitants. (See also I, *American History;* III, *International Relations,* and IV, *Mexico.*)

All arms of the service have participated in the "Border patrol"; the work has consisted in preventing filibustering, guarding the bridges, and protecting American citizens who try to get too near the scenes of hostilities between the various Mexican factions. The infantry and cavalry have done most of the work, but at Brownsville, Coast Artillery from the South Atlantic District have been stationed, and some of the same corps from the Pacific District have been on duty at the western end of the boundary. About 5,000 Mexicans belonging to the warring factions had been driven or retreated across the line, surrendering to the American troops. These Mexicans have been interned in camps at Fort Wingate, N. M., El Paso, Brownsville and Fort McIntosh, Tex.,

and Fort Rosecrans, Cal. Recently all of these internes, except four or five commissioned officers, have been released and escorted to the border, but the Government has so far deemed it inadvisable to send these officers back to Mexico.

Two battalions of infantry are in China as legation guard. In the light of recent events their duties have greatly increased in importance.

During the year it has been necessary, at the urgent request of the Governor of Colorado, to send the 11th and part of the 15th Cavalry to the disturbed mining regions where the militia had failed to keep the peace and protect life and property. No serious disturbances have occurred since the arrival of the troops. (See also XVI, *Labor.*)

The Mobile Army.—On account of the number of organizations away from their home stations, it was not possible to have any large maneuvers, but training of all kinds was carried on during the year. Practice marches, small-arms practice, camps and theoretical instruction occupied that part of the mobile army available for such work. A camp of instruction for field artillery, regular and militia, was held at Tobyhanna, Pa., and the results were very satisfactory. The terrain of the Tobyhanna Reservation lends itself admirably to the working out of varied problems, and this camp has been, and will be, a most valuable adjunct for the development of an effective mobile artillery. The infantry has devoted itself to purely practical work to a greater extent than ever, with improvement along all lines. In the cavalry, much attention has been devoted to the new drill. The drill and new regulations had been tried out in 1913 at Winchester, Va., and their advocates have great faith that efficiency will result. Some cavalry officers, however, do not agree with this opinion and think that further trials will develop many defects. It has been stated that shock action was out of date and that cavalry charges, under the conditions of modern warfare, would not and could not be made. However, there is no doubt that cavalry is being used in the present European War to a greater extent and in greater numbers than ever before; and it is also evident that this arm is put to all the varied uses with which former wars have familiarized soldiers and students.

The Coast Artillery.—The coast defenses already constructed and appropriated for will require, to man all mines, power and light plants, and one-half of the gun defenses, 2,052 officers and 48,840 men, of whom 740 officers and 18,531 men are to be furnished from the militia of the seacoast states. The authorized strength of the regular Coast Artillery is 715 officers and 19,019 men; the militia at the last annual inspection numbered 441 officers and 7,122 men, making a total organized force of 1,156 officers and 26,141 men.

The organization into Coast Artillery districts, coast-defense commands and coast forts, has been found to possess many advantages, both tactical and administrative. The principle of having all the forts in one vicinity under one head, in a coast-defense command, has been particularly efficient in its application, especially in the control of the organizations for infantry duty.

Coast fortifications in the United States and elsewhere have been completed, except certain batteries in Manila Bay, Hawaii and the Canal Zone, which are practically finished, and the defenses of Los Angeles, on which satisfactory progress has been made. In addition to the six companies now in the Panama Canal Zone, six more will be sent there during the next few months.

The installation of dummy armament in the armories of the Coast Artillery militia has been carried on and will result in a higher state of efficiency. In the regular Coast Artillery, reports of target practice show general improvement as a result of the new regulations issued in 1913. The results of night practice, giving, as it does, opportunity for practical employment of search lights, and developing weaknesses which have subsequently been corrected, besides instilling confidence in the personnel, has been especially gratifying to the Artillery. In mine work reports received indicate an efficiency of 90.9 in mine target practice. During the year one officer of the Chilean Navy and

one of the Chilean Army have taken the course at the Artillery School at Fort Monroe, and two officers from the Navy and two from the Army of Brazil have been designated by the War Department to take the course during 1915.

The Supply Corps.—In general, the work of the several supply corps and departments has been further perfected during the year. The Regular Army is supplied with everything authorized, in so far as the funds available will permit.

The Quartermaster Corps. — The work of transportation and supply of the force sent to Vera Cruz has been handled promptly and efficiently. The regulations for the procurement, distribution and accounting for supplies in time of war or in the field have resulted in quickly and satisfactorily furnishing the troops concerned with all supplies needed, without in any way creating any difficulties in the necessary cost-keeping and records, but have lifted a mass of clerical work from the shoulders of the Quartermaster Corps officers and men actually in the field. The system prescribed by the Chief of the Quartermaster Corps on March 12, 1913, worked automatically. Much work has been done during the year in the investigation of food stuffs for an emergency ration, in investigating heating, lighting and water-supply systems, and in various other investigations to the end that ample supplies may be furnished at the lowest cost to the Government, compatible with satisfactory quality.

Automobiles, with and without trailers, have been used in supplying troops on the Texas border, with most satisfactory results. Improvements have been made in details of administration and all methods are being simplified to the greatest extent possible in view of legal requirements. New construction work, principally oversea and at Forts Bliss, Tex., and Huachuca, Ariz., was continued during the year. Reserve supplies were somewhat depleted, on account of the necessity for furnishing troops in the field.

The Ordnance Department.—Reserve supplies of ordnance material have been accumulated, almost to what is believed to be a sufficient amount; the regular Army and the militia are equipped, and the reserve stock of rifles, bayonets, revolvers, machine guns, ammunition for small arms and for sea-coast armament, is nearing the required magnitude. On the other hand, the number of field guns, siege guns, and ammunition therefor does not fulfill the requirements of even the present organized forces, and the shortage in reserve supplies of this character is a matter of serious import. During the year, a new sword has been adopted for the mounted service, taking the place of the old cavalry saber. The new weapon has a basket hilt, fully protecting the hand, and is adapted both for cutting and thrusting. The work of the Ordnance Department in connection with the defenses of the Philippines, Hawaii, and the Canal Zone has been practically completed.

The Engineer Corps. — Engineer troops have been with all the field forces on the border and in Mexico during the year. The work of the Corps in connection with the sea-coast defenses in the United States has been principally that of maintenance and repair; and its work on the fortifications in the Philippines, Hawaii and the Canal Zone is practically done, so far as pertains to new construction. River and harbor improvement and construction, which form a large part of the duties of this Corps, are noted elsewhere in this volume (see X, *Waterways and Harbors*).

The Signal Corps.—Although the Chief Signal Officer has desired to turn over the maintenance and operation of the Alaska telegraph system to the Post Office Department, favorable action was not taken on his recommendation to that effect and the administration of the system still requires much attention.

The Signal Corps have installed and operate the following radio-telegraph stations: 22 in the United States; ten in Alaska; seven in the Philippines; two in Hawaii; two on cable steamers; ten on Artillery harbor boats; three on mine planters; and eight on Army transports. Of these, those in Alaska and on the transports are open to the public; others are for Government business

only. Supplies of field telegraph and telephone sets, field buzzers, etc., have been furnished to many organizations and several field companies have been with the troops during the past year.

By the Act of Congress approved July 18, an Aviation Section was created, to be a part of the Signal Corps, charged with the duty of supervising the operation of all air craft and training officers and enlisted men in military aviation. This Act provided for 60 officers and 260 additional men above those assigned from the Signal Corps at large. The strength of the Signal Corps was increased accordingly, the additional officers to be detailed from the line, from officers below the rank of captain, for a period of four years, subject to redetail. Ratings were authorized as "junior military aviators" and "military aviators" for officers. Each junior aviator will receive, while so serving, the rank, pay and allowances of one grade higher than that held by him under his line commission, and if on duty requiring him to make frequent flights, an increase of 50 per cent. of his total line pay. The same provisions apply to "military aviators," except that they will receive 75 per cent. of their total line pay when on duty requiring frequent flights. The Act provides for 12 master signal electricians, 12 first-class sergeants, 24 sergeants, 78 corporals, eight cooks, 82 first-class privates, and 44 privates. Forty of these men are to be rated as "aviation mechanics," and a 50 per cent. increase in pay is provided for this rating and for men on duty requiring frequent flying. The Act provides regulations governing ratings, and further directs the payment of one year's pay to the widow of any officer or enlisted man who shall die as the result of an aviation accident.

An aviation school has been established at San Diego, Cal., and an aviation station will shortly be established at Fort Sam Houston, Tex. Congress has authorized $250,000 for the purchase, maintenance and operation of air craft, and it is expected that the present number of such craft will soon be largely increased. (See also XXI, *Aeronautics.*)

The Medical Corps.—The records of the Medical Corps show that the health of the Army has been good. It is a rather curious fact that the percentage of the constantly non-effective rate at Vera Cruz has been somewhat less than that of the Army as a whole. The rate for the whole Army, including the Philippine Scouts and the Porto Rico Regiment, is stated as 23.98 per thousand; for the Philippine Department, separately, 26.87; and for Vera Cruz, only 22.23.

There were four cases of typhoid fever, all white enlisted men. In one of these cases, the prophylactic treatment had been administered about two years previous to admittance; this case developed in China. One case had been given the treatment about a year before admission, and one developed about a year and three months after having had one injection only. When it is considered that the four cases were the only ones in an Army of about 87,000 men, several thousand of them being in camp in tropical climates, the value of the prophylactic treatment is fully demonstrated. Alcoholism and resulting diseases are becoming rarer. (See also XXVIII, *Public Health and Hygiene.*)

The Medical Corps has had much field service during the year, but has steadily progressed in research work of varied character. The sanitation of the military posts in the Panama Canal Zone has been taken over from the civil government.

The Philippine Islands.—There are now no military governments in the Philippine Islands, the last district having been placed in the hands of the civil government in 1913 (*A. Y. B.*, 1913, p. 314). The work of the Army in the Islands during 1914 has not been marked by any very notable events, but there have been some military operations. Since the successful campaign against hostile Moros in the Island of Jolo mentioned in the YEAR BOOK for 1913 (p. 315) a number of engagements have taken place, among them one at Bud Tandu, on March 1. Detachments of the 8th Infantry, Troops I and L, 8th Cavalry, and the 13th, 14th, 16th, 21st, 24th, 31st, 40th and 52nd companies, Philippine Scouts, were engaged, with a total loss of eight men killed and one officer and 18 men wounded. (See also VIII, *The Philippine Islands.*)

The Military Academy.—The requirements for admission to the Military Academy at West Point were changed by General Orders No. 38, May 22, 1914, so as to excuse a candidate from the mental examination, on condition that he present certificates from any college, university or technical school accredited by the United States Military Academy, from an accredited preparatory or public high school, or from the College Entrance Examination Board. The certificates must show that the candidate is a regular enrolled student in the schools or colleges referred to, in good standing without conditions, and that he is either pursuing a course requiring proficiency, or has established efficiency in 14 units of the College Entrance Examination Board.

THE ORGANIZED MILITIA

The aggregate number of the Organized Militia was, at the end of the last inspection season, 128,043. The division of officers and men among the staff corps and departments and the different arms was as follows:

	Officers	Enlisted Men
General officers of the line	31	....
Adjutant-general's department	98	....
Inspector-general's department	47	....
Judge-advocate-general's department	48	....
Quartermaster corps	157	108
Subsistence department	19	17
Pay department	10	....
Medical department	783	3,556
Corps of engineers	78	1,246
Ordnance department	59	39
Signal corps	72	1,470
Cavalry	298	4,642
Field artillery	314	5,914
Coast artillery	450	7,150
Infantry	6,328	95,109
Total	8,792	119,251

General Orders No. 51, July 2, 1914, prescribed the minimum enlisted strength of militia organizations as follows:

Infantry company	65
Cavalry troop	65
Engineer company	65
Coast artillery company	65
Field artillery battery	133
Signal corps company	40 to 75
Hospital corps	33 to 43

The mobile militia organizations have been equipped so far as funds permitted, but many organizations are insufficiently supplied.

While, on the whole, a general improvement has taken place, the Militia have labored under many disadvantages. It was only in 1914 that the heads of the various government departments in Washington itself made it possible for an employee to attend drills, encampments, etc., without being counted as absent. In some parts of the country, there are still many short-sighted employers who practically prevent men from becoming members of the National Guard. Efforts have been made during the year to compel a more exact compliance with the law, in the matter of minimum numbers and proper organization; and in one case the aid of Congress was invoked in order to more clearly define the authority of the War Department. The same tendency to use up the ammunition allowance in developing a few men for team competitions, rather than so to train all the men that good average marksmanship will be secured, is still observed. Discipline is believed to be better, and in the case of some organizations results of practical training have been very satisfactory. More training will be required, however, in the general case, before the Militia can be considered as a force which could furnish immediate and effective service. The difficulty in keeping the ranks filled up to numbers which could be handled with profit to the officers, militates greatly against the efficiency so much to be desired; and the tendency to "top heaviness" is one which has to be carefully watched, and is, unfortunately, not always corrected. No special militia legislation was passed during the year, although the question of paying the militia was again brought up.

PENSIONS

The first pensions were paid under authority of a resolution of Congress dated Aug. 26, 1776. The largest number of pensioners on the rolls was 999,446, in 1902. On June 30, 1914, the number was 785,239, a loss of 35,033 from the previous year.

Disbursements during the year 1913 were made to the pensioners of the various wars as follows:

Civil War	$163,377,551.53
War with Spain	3,907,509.53
War of 1812	27,532.40
War with Mexico	1,060,529.74
Indian wars	560,247.40
Regular establishment	3,475,147.69
Treasury settlements	9,027.97
Total pensions	$172,417,546.26
Cost of disbursement	2,066,507.15
Aggregate	$174,484,053.41

The total amount paid for pensions from July 1, 1790, to June 30, 1865, was $96,445,444.23, and total disbursements from 1866 to June 30, 1914, were $4,633,511,926.71, making an aggregate amount paid out on account of pensions since the year 1790 to the present time of $4,729,957,370.94. Approximately $4,457,974,496.00 of the total amount has been paid to pensioners on account of the Civil War. For the first time, the Commissioner of Pensions reports the percentages of loss of pensioners, and shows that these percentages have increased from 5.2 per cent. in 1909 to 7.3 per cent. in 1914. The number lost by death in 1909 was 32,831, and in 1914, 33,639. The records of the Pension Bureau indicate that the number of pensioners will decrease rapidly from now on, with a corresponding reduction in disbursements. Due to certain changes made possible by the law of 1912 (*A. Y. B.*, 1913, p. 316), and also to changes instituted in methods in use in the Pension Office, large savings have been made during the year in the expenses of the Office.

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THE NAVY

Charles C. Gill

ADMINISTRATION

Navy Department.—Since March 4, 1913, Josephus Daniels has been Secretary of the Navy and Franklin D. Roosevelt Assistant Secretary. At the close of 1914 the subordinate personnel was as follows: Rear-Adm. B. A. Fiske, Aid for Operations; Capt. A. G. Winterhalter, Aid for Material; and Capt. G. R. Clark, Aid for Education. These officers were assigned by Secretary Daniels. During the year the office of Aid for Personnel has been discontinued, and those duties divided between the Bureau of Navigation and the Major-General Commandant of Marines. The latter has been made an aid. The office of Aid for Inspections also has been discontinued, while the office of Aid for Education has been created. The five chiefs of bureaus, appointed by the President for a fixed term of four years with advancement to the rank of rear-admiral, are as follows: Navigation, Capt. Victor Blue; Engineering, Capt. R. S. Griffin; Ordnance, Capt. J. Strauss; Construction and Repair, Chief Constructor D. W. Taylor; Yards and Docks, Civil Engineer H. R. Stanford; Medicine and Surgery, Medical Inspector W. C. Braisted (Surgeon-General); Supplies and Accounts, Pay-Inspector S. McGowan (Paymaster-General). The Bureau of Equipment has been abolished and its work distributed. The Admiral of the Navy, George Dewey, continues to preside over the General Board, which advises the Secretary concerning the requirements of the fleet.

Appropriations.—The Naval Appropriation Act for 1914-15 authorized expenditures of $140,350,833.61, a sum which is $449,809.39 less than that

authorized for the preceding year. The Act provided a building programme of two super-Dreadnoughts, six destroyers, and eight or more submarines, one of which will be able to accompany the fleet and will be the first large, sea-going submarine to be built for the U. S. Navy. Authority was also given to provide funds for constructing a third super-Dreadnought by selling to Greece the pre-Dreadnoughts *Idaho* and *Mississippi*. The building programme of the preceding year consisted of one super-Dreadnought, six destroyers, four submarines, one transport, and one supply ship. The Secretary announced that the advantages in this year's building programme with reduced expenditures were due to economies, competition, and strict adherence to the principle that expenditures ashore should be subordinated to expenditures afloat. The sum of $200,000 was appropriated to enlarge the Navy's powder factory. Provision was made to extend the torpedo works at Newport, and for new building slips at Boston and Philadelphia. Authority was given to enter into an agreement for the use of the new private dock to be built at Hunter's Point, San Francisco. This dock will be large enough to handle any ship which may pass through the Panama Canal. Provisions were made for investigation and report on the question of erecting a Government armor-plate factory. The Aviation Corps was assured further development and the scope of the Engineer Corps was broadened. The corps of chaplains was increased from 24 to 52. It was provided that any citizen enlisted man who has served one year and is under the age of 20 may participate in a competitive examination for entrance to the Naval Academy, and that the 15 standing highest may be appointed to the Naval Academy upon their meeting the prescribed physical and mental tests.

Navy Estimate for 1916.—The total of estimates for the naval establishment for the fiscal year ending June 30, 1916, inclusive of public works, is $145,396,819.88. For 1915 the total appropriation was $144,868,716.61, which included appropriations of $458,000 for 1915 not asked for in 1916.

The estimate for increase of the Navy, proposed building programme for 1916, is $19,224,998, divided as follows: construction and machinery (authorized), $13,464,459; for programme 1916, $7,575,000 (amount required for first year's work to be available until expended); torpedo boats (authorized), $1,341,344; torpedo boats, programme 1916, $2,225,000; armor and armament for vessels authorized, $9,000,000; for building programme 1916, $9,424,998. There is also an unexpended balance of $521,000 from 1915 to be added to the appropriation for 1916 on the increase of the Navy. The programme for 1916 keeps pace with that of 1915 and bespeaks two dreadnoughts, six destroyers, eight or more submarines, a gunboat, and an oiler.

Recommendations of the General Board of the Navy.—The General Board recommends for 1916 a programme of naval increase which is summarized as follows: Four battleships, 16 destroyers, three fleet submarines, 16 coast submarines, four scouts, four gunboats, two oil-fuel ships, one destroyer tender, one submarine tender, one Navy transport, one hospital ship, air service, $5,000,000. The reasons for adopting this programme are set forth at length in the report of the General Board. This report also sets forth expert opinions respecting what constitutes an adequate naval defense, a topic of active discussion at the close of the year.

Personnel.—Recruiting has been brisk and the Navy is practically enlisted up to its authorized strength of 51,500. During the calendar year 1913 about 60 per cent. of the men whose enlistments expired reënlisted. Out of 88,943 applicants for enlistment in the Navy only 13,780 were accepted. This small percentage indicates the high standard of character and efficiency required. According to the Chief of the Navigation Bureau the Navy is 4,565 men and 203 line officers short of the number necessary to man vessels of military value. Under the present laws officers recently graduated from the Naval Academy will remain junior lieutenants until they are nearly 50 years old, and consequently will perform brief service in the higher grades before retire-

ment. The need for legislation for the relief of these discouraging conditions is urgent.

The operation of the "selection out" method to maintain an even flow of promotion and longer terms of service in the higher grades has been adversely criticised from many quarters, and the Department is trying to devise a substitute scheme better adapted to the accomplishment of the desired end.

The Secretary issued an order, which went into effect on July 1, prohibiting the introduction or use for drinking purposes of any alcoholic beverage on board ship or within the limits of a navy yard or station. Formerly officers had the privilege of using in moderation light wines and beers both aboard ship and in government quarters.

Naval Militia.—In February Congress enacted a Naval Militia Act which was approved by the President. Under the terms of the Act the naval militia is given until Feb. 16, 1917, to prepare to comply with the organization to be prescribed by the Secretary of the Navy. After that date the Secretary shall prescribe the arms, armament and equipment of the naval militia, and he is authorized to issue to the governors of the states, as a loan, vessels, stores, supplies, and equipment for the naval militia. The law in many respects is stronger than the Dick law, under which the organized land militia is operating. The President is authorized in event of war, actual or threatened, invasion, or rebellion, to call upon the naval militia to repel such invasion, suppress such rebellion, or to execute his orders, the orders to be issued through the governor of the state. The naval militia, when called into service, is to be governed by the Navy Regulations. In time of service, officers and men are to receive the same pay as the same grades in the regular service. The naval militia of each state is to have at least five days of military or naval exercise each year. An examining board is to hold examinations from time to time under rules prescribed by the Secretary of the Navy. Commissions and certificates will be given to officers and men who qualify.

The Naval Militia General Board and a board appointed by Secretary Daniels to formulate a standard of professional examinations for officers and enlisted men of the naval militia and to recommend a definite plan for carrying out the other provisions of the Naval Militia Act, began sessions at Washington on Oct. 20. The naval militia held in the fall its first competitive target practice, conducted, as far as possible, under the same conditions as obtain in the Navy. A pennant is awarded to the organization which makes the best record, and it is believed that a very spirited rivalry will develop among the naval militia of the different states.

Navy Yards and Shore Stations.—The Secretary of the Navy has made known his inclination for management of navy yards on the basis of industrial plants, of which the superintendents or managers shall be officers of proven ability and experience, either line officers, naval constructors, or engineer officers, while the commandant of the yard shall be its military head, whose function it is to designate the work which must be done to meet the needs of the service. Beyond that, it is proposed that the commandant's duties and authority shall not proceed. A scheme of this character has recently been put into operation at the New York Navy Yard and at Charleston, S. C.

The Pearl Harbor Drydock, Honolulu, will be completed in an estimated period of two years. The proposed construction will be on entirely new plans designed to meet peculiar local conditions. The power plant at Pearl Harbor has been completed and the construction of the coaling plant and the fuel-oil depot is in progress.

The Darien Radio Station is in progress of construction, and will form one of a number of naval radio stations of the greatest range. Others are being designed for the California coast, Hawaii, and the Philippines. The construction of the towers and buildings is done by the Bureau of Yards and Docks, while the Bureau of Steam Engineering installs the radio apparatus. Work was actively prosecuted during the fiscal year on the high power radio station in the Canal Zone. Two 300-ft. towers were

erected at San Juan, P. R., and a power house was completed at Jupiter, Fla. Contracts were awarded near the close of the fiscal year for two 300-ft. towers at Chelsea, Mass.; two 400-ft. towers and a building at the Naval Training Station, Great Lakes; one 200-ft. tower at Beaufort, N. C.; three 300-ft. towers at Key West, Fla.; two 300-ft. towers and a building at New Orleans, La.; and two 300-ft. towers at the navy yard, Washington, D. C.

Aeronautics.—The good work done by air scouts in Mexico and the lessons of the European War indicate that aeronautics is due to assume much greater prominence in the United States Navy. The Bureau of Yards and Docks is making studies with a view to providing shelter for various types of air craft. The housing of dirigible balloons is a problem that calls into play all the talents of the engineer.

Naval Education.—The Naval Academy graduated in June a class of 152 who were commissioned as ensigns. The admissions to the Academy numbered 267. The courses in English at the Academy have been materially improved and modernized during the year, and steps have been taken to encourage and promote literary tastes and literary work. During the summer, three battleships of the Reserve Fleet, under the command of the Superintendent of the Academy, Capt. W. F. Fullam, and officered for the most part by naval officers detailed from the Academy, formed a practice squadron which took the three upper classes on a European cruise, the general idea being to transfer the Naval Academy afloat for the summer months, except the new entering class, which remained at the Academy for "shaking down" instruction.

The work of the Naval War College is yearly growing in importance, and extension courses have been formed both ashore and afloat. The Naval Institute has also published in its *Proceedings* articles which closely concern Naval War College work, thus increasing the interest of the service at large in this work.

The Judge-Advocate General of the Navy in his annual report for 1914 points out that the navy requires the services of officers who are good lawyers; officers who have added to their technical naval knowledge a special understanding of the law, both military, civil and international. In order to perfect this knowledge, and in order that the Navy may obtain the maximum benefit from their services, they should be assigned in the line of their specialty. It is recommended that officers who have completed the course of law on their next tour of shore duty take a special course in international law.

An order issued by the Navy Department in December, 1913, and put into effect on Jan. 1, provides for instruction of enlisted men, petty officers, and warrant officers of the Navy serving on board ships, with a view to supplying deficiencies in school training and also to provide systematic means by which all enlisted men and warrant officers may receive the assistance and encouragement in technical branches necessary to fit them for promotion in the Navy, or which will better prepare them for civil trades at the end of their period of service afloat. Instruction in academic branches is also given to apprentice seamen at the several training stations in addition to their professional training. The terms of training at these stations have been extended from four to six months. Schools for assistant paymasters, yeomen, cooks, bakers, commissary stewards, hospital apprentices, machinist's mates, musicians, mess attendants, painters, plumbers, electricians, blacksmiths, and carpenters are maintained at various naval stations. The instruction and training received at these schools fit the men for useful work not only in the service but for that followed after discharge from the Navy. Changes, based on the experience of the year, are contemplated, the object of which is to standardize the work at the stations and on board ships.

CONSTRUCTION AND ARMAMENT

New Vessels Commissioned and Launched.—The following vessels have been commissioned and added to the Navy since Jan. 1, 1914:

BATTLESHIPS:		
New York	April	15
Texas	March	12
DESTROYERS:		
Aylwin	Jan.	17
Benham	Jan.	20
Balch	March	26
McDougal	June	16
SUBMARINES:		
H–3	Jan.	16
K–1	March	17
K–2	Jan.	31
K–5	Aug.	24
K–6	Sept.	9
G–4	Jan.	22
GUNBOATS:		
Monocacy	June	24
Palos	June	24
Sacramento	April	26

The following vessels have been launched since Jan. 1, 1914:

Sacramento	Feb.	21
K–3	March	14
K–5	March	17
Oklahoma	March	23
K–4	March	19
K–6	March	26
McDougal	April	22
Palos	April	23
Monocacy	April	27
Fulton	June	6
K–7	June	20
K–8	July	11
Nevada	July	11
Kanawha	July	11
O'Brien	July	20
Nicholson	Aug.	19
Ericsson	Aug.	22

The vessels authorized and under construction for the Navy include four battleships, 12 torpedo boat destroyers, 19 submarine torpedo boats, one destroyer tender, two submarine tenders and four auxiliaries.

New Battleships.—The battleships *California*, *Idaho* and *Mississippi*, authorized in 1914, will represent no radical departure in construction or equipment. The Department adheres to its policy not to sacrifice offensive or defensive qualities for increase of speed, but to provide a fleet with a uniformly moderate speed of 20½ to 21 knots. Two of these battleships were provided for in the Naval Appropriation Act, and the third will be paid for by the sale of the old battleships *Mississippi* and *Idaho* to Greece. Mr. Daniels signed the contract plans on July 30. One ship was awarded to the New York Shipbuilding Co. on their Class 1 bid ($7,250,000), and one to the Newport News Shipbuilding Co. on their Class 2 bid ($7,115,000). The hulls of both ships will be in accordance with the Department's design, but the turbines will differ in the two ships; in the one to be built by the New York Shipbuilding Co. they will be of the Parsons type, similar to those of the *Arizona*, and in the other ship of the Curtis type, similar to those of the *Pennsylvania*. The third ship will be built at the New York Navy Yard. Her hull will be the same as the hulls of the others, but a decision as to the type of machinery has not yet been reached. The dimensions and principal points of these three new ships are: length over all, 624 ft.; length between perpendiculars, 600 ft.; breadth, extreme, 97 ft. 4½ in.; draft, 30 ft.; displacement, 32,000 tons; speed, 21 knots. Armament: main battery, 12 14-in. guns, four submerged torpedo tubes; torpedo defense battery, 22 five-inch rapid-fire guns.

The *Nevada* and the *Oklahoma*, to be completed by contract in 1915, are well advanced, and the 14-in. guns and mounts for both have been completed and shipped from the Washington Gun Factory. The main battery for each consists of ten 14-in. guns mounted in two triple turrets and two double turrets. These are the first three-gun turret ships built for the United States Navy. The *Nevada* and the *Oklahoma* are sister ships, 554 ft. long, of 27,500 tons displacement, and 20.5 knots speed. The former was launched by the Fore River Shipbuilding Co. at Quincy, Mass., on July 11, and the latter was launched at Camden, N. J., on March 23.

The keel of battleship No. 39, the *Arizona*, authorized March 4, 1913, was laid down at the New York Navy Yard on March 16. This ship will be, in all essential particulars, a duplicate of the *Pennsylvania*, now under construction at Newport News, except as regards propelling machinery. The *Arizona* will be fitted with Parsons' steam turbines, and her general dimensions and features are as follows: length on designer's water line, 600 ft.; length over all, 608 ft.; breadth, extreme, at designer's water line, 97 ft. ½ in.; mean trial displacement, 31,400 tons; mean draft to bottom of keel at trial displacement, 28 ft. 10 in. (about); total fuel-oil storage, 2,322 tons; fuel oil carried on trial, 1,548 tons; feed water carried on trial, 209 tons; speed on trial, not less than 21

knots. Her armament is: main battery, 12 14-in. 45-caliber breech-loading rifles, and four submerged torpedo tubes; secondary battery, 22 five-inch 51-caliber rapid-fire guns, four three-pounder saluting guns, two one-pounder guns for boats, two three-inch field pieces, and two machine guns. Plans prescribe two triple-gun turrets forward and two aft on center line, guns of the rear turret in each case firing over the top of the turret in front. The *Arizona* will have two cage masts, a single funnel, and two derricks or cranes with a swinging arm for the lowering and hoisting in of boats. The main armor belt will be 16 in. thick.

Destroyers and Submarines.—The six destroyers now designated as Nos. 63, 64, 65, 66, 67, and 68, will be named, as is customary, after naval officers of the past distinguished by their service records. These destroyers were provided for in the last Naval Appropriation Act; the Secretary of the Navy approved the plans on Sept. 5 and sent out circulars inviting shipbuilders to submit competitive bids. The plans were prepared under the supervision of the Chief Constructor and the designs developed by the Bureaus of Construction and Repair and Steam Engineering to meet requirements evolved by the General Board of the Navy. The design differs from that of the preceding class principally in the substitution of triple for twin torpedo tubes. The main characteristics of these vessels will be: length, 310 ft.; beam, 29 ft. 10 in.; draft, 9 ft. 6 in.; displacement, 1,108 tons; battery, four four-inch rapid fire guns and four triple torpedo tubes; machinery, steam turbines, oil-burning water-tube boilers.

The work of submarines in the European War is being watched with close interest and will have potent influence in shaping submarine development in this country. Nineteen submarines are now under construction for the United States Navy.

Auxiliaries.—The lack of proper auxiliaries is keenly felt, and much can be done to make the fleet better balanced. But the Navy deems that it would be a mistake to secure such a fleet at the expense of main fighting craft, because makeshift auxiliaries can be improvised in an emergency, whereas battleships must be planned and commenced at least three years beforehand. There are now under construction one fuel ship, three tenders to torpedo vessels, one transport, and one supply ship.

The naval collier *Jupiter*, during the summer, tested her electrical propelling machinery supplied by the General Electric Co., averaging 15.1 knots on the four-hour speed trial, and 14.9 knots on the 20-hour endurance trial. These results were fully up to requirements. The *Jupiter* cruised from San Francisco to Philadelphia by way of the Panama Canal in 23 days. This test proved the value of the electric drive, which will, therefore, be installed on the battleship *California*, to be built at the New York Navy Yard.

The *Fulton*, the first submarine tender built for the United States Navy, was launched by the Fore River Shipbuilding Co. on June 6. She is the first vessel in this country equipped with heavy-oil Diesel engines. When in service, she will be the mother ship for a division of submarines. She is about 226 ft. long and will develop 1,000 h.p., which is expected to give her a speed of about 14 knots.

Two light gunboats for Chinese waters were shipped to Shanghai in sections and there put together and launched. They are constructed to penetrate to the farthest trading post in the interior of China.

The Navy Department is inviting competitive bids for the construction of vessels intended primarily for the transportation of coal to Panama. These vessels have been so designed as to lend themselves readily to conversion to the government type of colliers, and will therefore be capable of forming valuable adjuncts to the fleet if necessary in time of war. They will be 522 ft. over all, 62 ft. beam, and approximately 28 ft. draft loaded, with a sea speed at the load draft of 14 knots.

Guns and Armor.—The Bureau of Ordnance has prepared plans for a 16-in. gun, but it is expected that the new ships of the 1915 programme will carry the present type of 14-in. gun, which is considered one of the most powerful afloat, if not of the

longest range. The successful three-gun turret arrangements will be followed in the armaments of the new battleships.

A board of officers was detailed to make recommendations for the development of the Washington Navy Yard, and reported that while the product of the gun factory during every stage of its development has been of the highest quality, the plant is too small to meet adequately the progressive needs of the Navy, particularly as the demand for heavy and more powerful ordnance has, during the past ten years, been greater than the plant could expeditiously supply.

The Navy Department has placed orders for 12 three-inch guns for mounting upon the latest submarines. The Bureau of Ordnance has now come into line with the British and German authorities in equipping their underwater craft. These guns will be mounted after the British and German fashion, being elevated and lowered into the hull and fitted with a piece of deck plating which will serve as a shield to the gunners.

THE FLEET

Commands Afloat.—Rear-Adm. F. F. Fletcher commands the Atlantic Fleet, with Capt. H. McL. P. Huse as his chief of staff. Besides the flagship dreadnought *New York*, there are four battleship divisions of five ships each, the division commanders being Rear-Adm. H. T. Mayo, Rear-Adm. C. J. Boush, Rear-Adm. T. DeW. Coffman, and Rear-Adm. W. McLean. The cruiser squadron of four armored cruisers, three light cruisers, six gunboats, one tender, and one mine depot ship, is commanded by Rear-Adm. W. B. Caperton. Capt. W. S. Sims commands the torpedo flotilla, comprising one light cruiser, 22 destroyers, and one tender. Commander Yates Stirling commands the submarine flotilla, consisting of 17 submarines and three tenders. Attached to the Atlantic Fleet are also two supply ships, one ammunition ship, one repair ship, one hospital ship, one converted yacht, and four tugs. The Atlantic Reserve Fleet is under the command of Rear-Adm. J. M. Helm, and comprises seven battleships, 13 destroyers, and one repair ship.

Rear-Adm. T. B. Howard commands the Pacific Fleet of three armored cruisers, six light cruisers, two gunboats, five destroyers, seven submarines, two tenders, and one supply ship. The Pacific Reserve Fleet is commanded by Rear-Adm. R. M. Doyle, and comprises one battleship, two armored cruisers, two light cruisers, four destroyers, two submarines, and one tug.

Rear-Adm. W. C. Cowles commands the Asiatic Fleet of three light cruisers, 10 gunboats, two monitors, five destroyers, six submarines, two tenders, one transport, and two tugs.

Operations.—Late in the year 1913 the Atlantic Fleet made a European cruise, giving the personnel an opportunity for foreign travel. During 1914 the Atlantic and Pacific fleets have been kept for the most part in Mexican waters. Most of the big ships have been withdrawn from Mexican waters and are now engaged in fleet maneuvers, exercises and target practices.

During the year the Navy was called upon to perform active police duties in Central American and West Indian waters. Under the direction of Rear-Adm. Fletcher, a landing force occupied Vera Cruz by force of arms and administered the affairs of the city until relieved by the Army (see I, *American History*). Marines have been landed in the Dominican Republic and Haiti, and a naval landing force, consisting of both marines and sailors, was actively engaged in minor operations in Nicaragua (see IV, *Latin America.*)

FOREIGN NAVAL DEVELOPMENTS

Strength of the Principal Navies.—All tables making comparison of naval strength must be used with caution, but the accompanying statistics, compiled by the Office of Naval Intelligence at Washington, furnish useful data of the condition of the fleets of the principal naval powers on the outbreak of the European War. In the conditions now obtaining in Europe it is impossible to secure trustworthy information of more recent development.

Battleship Design. — Under-water armor protection against torpedo at-

tack is a question receiving much attention abroad. The French have made successful experiments with an air-cushion defense against submarine attack.

The latest French battleship design provides for a main armament of 12 13.4-in. guns mounted in three quadruple turrets. In addition to these spacious quadruple turrets, a revolving turret forming the upper part of the conning tower affords complete protection for range-finders. Italy has drawn up a new design for a group of four battleships introducing motor propulsion. The battleships will be fitted with one center and two wing shafts, the wing shafts to be driven by ordinary steam turbines, while the center shaft will be operated by a 12,000-h.p. Diesel engine. The main armament will consist of eight 15-in. (possibly 16-in.) guns. The vessels will be 629 ft. long, with 26,000 tons displacement. They are designed for a speed of 25 knots, using oil fuel exclusively. England has advanced from the 13.5-in. gun to the 15-in., which is claimed to reproduce the virtues of the 13.5-in. gun on a larger scale. The battleships of the 1912-13 programme will carry this 15-in. weapon, and it is probable that the British Navy will have ten vessels so armed before any other country has two.

There is discussion abroad of the possibilities of a battleship designed to fire a broadside of 12 torpedoes and so constructed as to be for the most part submerged, thus presenting a small area to gun attack.

PERSONNEL OF THE PRINCIPAL NAVIES
(July 1, 1914)

Rank	England	Germany	United States	France	Japan	Russia	Italy	Austria-Hungary
Admirals of the fleet	3	2	1	.....	2	.....	.....	.....
Admirals	12	6	.....	.....	6	12	1	1
Vice Admirals	22	12	.....	15	19	20	10	2
Rear Admirals	58	22	25	30	38	21	19	15
Captains and commanders	702	154	212	360	270	346	137	80
Other line officers	2,508	2,220	1,680	1,419	1,965	1,378	753	558
Midshipmen at sea	639	448	.....	77	119	.....	73	175
Engineer officers	837	577	.....	505	811	538	326	164
Medical officers	593	340	336	390	364	286	259	84
Pay officers	750	276	231	211	388	.....	228	224
Naval constructors	122	162	75	187	135	519	107	141
Chaplains	147	30	24	.....	.....	85	.....	11
Warrant officers	2,740	3,183	867	147	1,569	.....	1,340	387
Enlisted men	119,597	65,797	52,566	60,505	50,050	49,258	36,660	17,689
Marine officers	465	177	341	.....	.....	.....	.....	.....
Enlisted men (marines)	21,414	5,791	9,915	.....	.....	.....	.....	.....
Total	150,609	79,197	66,273	63,846	55,736	52,463	39,913	19,531

Aircraft Strength. — The present strength in air war craft of European countries is indicated in official estimates submitted by the Navy Department to the Naval Committee. These show that Austria-Hungary has 600 aeroplanes and eight dirigibles; Belgium 60 aeroplanes, no dirigibles; Great Britain 900 aeroplanes, 12 dirigibles; France 1,400 aeroplanes, 30 dirigibles; Germany 1,400 aeroplanes, 60 dirigibles; Italy 300 aeroplanes, 4 dirigibles; Japan 20 aeroplanes, 2 dirigibles; Russia 1,000 aeroplanes, 20 dirigibles.

Lessons of the European War. — From the American point of view the chief naval lessons of the first few months of the European War may be summarized briefly as follows:

1. The value of aircraft for scouting and raiding.

2. The value of submarines for harbor defense and for attack when operating within a comparatively short radius (approximately 400 or 500 miles) from a naval base.

3. The value of fast cruisers to protect commerce by running down the enemy's commerce destroyers and to throttle the enemy's resources by cutting off her oversea trade.

4. The power of the battleship fleet to control the seas and protect the coasts in a war between belligerents separated by great distances of water.

WARSHIP TONNAGE OF THE PRINCIPAL NAVAL POWERS

Number and Displacement of Warships, Built and Building, of 1,500 or More Tons, and of Torpedo Craft of More than 50 Tons.
(July 1, 1914)

Type of Vessel	Great Britain				Germany				United States				France			
	Built		Building		Built		Building		Built		Building		Built		Building	
	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)
Battleships (Dreadnought type)	20	423,350	16	421,750	13	285,770	7	187,164	8	189,650	4	117,800	4	92,368	8	193,656
Battleships (Pre-Dreadnought)	40	589,385	.....	.....	20	242,800	.....	.....	22	309,282	.....	.....	18	262,675	.....	.....
Coast-defense vessels	.....	.....	.....	.....	2	8,168	.....	.....	4	12,900	.....	.....	1	8,800	.....	.....
Battle cruisers	9	187,800	1	28,500	4	88,749	4	112,000	.....	.....	.....	.....	.....	.....	.....	.....
Armored cruisers	34	406,800	.....	.....	9	94,245	.....	.....	11	149,295	.....	.....	20	201,724	.....	.....
Cruisers	74	382,815	17	67,000	41	150,747	5	26,900	14	66,410	.....	.....	9	46,095	.....	.....
Torpedo boat destroyers	167	125,850	21	21,770	130	67,094	24	14,400	51	35,068	11	11,956	84	35,812	3	2,653
Torpedo boats	49	11,488	.....	.....	.....	.....	.....	.....	13	2,528	.....	.....	135	13,426	.....	.....
Submarines	75	30,362	22	17,236	27	14,140	18	14,400	30	.....	19	.....	64	27,940	22	14,766
Totals	.....	2,157,850	.....	556,256	.....	951,713	.....	354,864	.....	765,133	.....	129,756	.....	688,840	.....	211,075
Total tons built and building		2,714,106				1,306,577				894,889				899,915		

Type of Vessel	Japan				Russia				Italy				Austria-Hungary			
	Built		Building		Built		Building		Built		Building		Built		Building	
	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)	Number	Tons	Number	Tons (Est.)
Battleships (Dreadnought type)	2	41,600	4	122,400	.....	.....	7	159,409	3	62,644	7	187,150	3	60,030	4	93,510
Battleships (Pre-Dreadnought)	13	191,380	.....	.....	7	98,750	.....	.....	8	96,100	.....	.....	6	74,613	.....	.....
Coast-defense vessels	2	9,086	.....	.....	2	10,380	.....	.....	.....	.....	.....	.....	6	41,700	.....	.....
Battle cruisers	2	55,000	2	55,000	.....	.....	4	128,000	.....	.....	.....	.....	.....	.....	.....	.....
Armored cruisers	13	138,483	.....	.....	6	63,500	.....	.....	9	74,020	.....	.....	2	13,380	.....	.....
Cruisers	13	57,915	.....	.....	9	52,845	8	53,600	6	18,830	2	4,888	5	13,815	5	21,216
Torpedo boat destroyers	50	20,487	2	1,676	91	36,748	44	53,664	36	16,807	15	14,203	18	9,450	.....	.....
Torpedo boats	27	3,017	.....	.....	14	2,132	.....	.....	68	11,584	2	272	39	6,852	24	5,886
Submarines	13	2,672	2	1,200	30	6,506	19	13,284	19	5,475	8	5,842	6	1,686	6	5,370
Totals	.....	519,640	.....	180,276	.....	270,861	.....	407,957	.....	285,460	.....	212,355	.....	221,526	.....	125,982
Total tons built and building		699,916				678,818				497,815				347,508		

5. The inadequacy of international agreements and treaties unless backed by adequate fighting power.

6. The value of naval preparedness. In a military sense the United States is virtually an island republic. In applying the lessons of the present war to home strategy, it is, therefore, particularly instructive to study the policy of Great Britain because of her geographical position, her national polices, and her commercial ambitions (see also III, *International Relations;* and IV, *The European War*). The following is quoted from Archibald Hurd in the *Fortnightly Review* of October, 1914:

> The British peoples are incurably maritime, by geographical distribution, by instinct, and by political bias, because sea power has always suggested freedom. At the moment when war broke out our naval power stood high—we were nearly twice as strong as the next greatest sea power; at the moment our military power stood low in comparison with the enormous forces—a total of about 15,000,000 men—which were immediately mobilized in Europe. Consequently in the early stages at least of the present war the influence which we could exert most powerfully and most usefully to ourselves and those associated with us took a naval form. From the beginning our first line of defense became our first line of offense. The North Sea became a "closed lake." German trade was strangled, German shipping driven off the seas, and the German colonial empire divorced from the motherland and smothered in detail.
>
> If by pursuing an offensive-defensive policy on the sea we can continue to strangle the maritime activities of our two great enemies—and all the nations of Europe are to be a great extent dependent on oversea supplies—we shall gain a grip on the whole strategic situation, ashore as well as afloat, which will enable us to use our increased military force as it should be used: It is the projectile of the naval arm to be thrown into the balance at any moment and at any place, as may be decided by those whose business it is to direct it.

Without questioning the wisdom of Great Britain sending "so small a military force into the maelstrom on the Continent" under the unusual circumstances, Mr. Hurd comments upon the direct conflict with two historic principles:

> First, that an island power should secure command of the sea before it attempts to use the sea for military transport; secondly, that any power does well, on the highest strategic grounds, to use its strong arm first and hold in reserve its weaker arm, in the meantime devoting the best efforts to its strengthening.

Mr. Hurd continues to point out that Germany was ready for war by land but unready by sea. He also makes the following statement:

> A strong and unconquered navy can render invaluable aid to armies in the field by supplying them with reinforcements, food and equipment, and by screening the preparation of further military power; but an army, however victorious, can give no aid to a navy.

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XIII. ECONOMIC CONDITIONS AND THE CONDUCT OF BUSINESS

S. S. Huebner

BUSINESS CONDITIONS IN 1914

A Year of Severe Decline in Business.—During 1913, as explained in the 1913 issue of the Year Book (p. 325), "practically all the leading barometers of trade indicated a marked decline instead of the very noticeable improvement of 1912, and the general tone of the financial and trade journals was distinctly pessimistic in character." It was stated also that in that year the condition of the crops, the principal mainstay of the nation's business enterprises, was so poor as naturally to exert a retarding influence on business in general. In addition to this factor, it was explained that

> 1913 was also a year of doubt and uncertainty, occasioned largely by numerous Federal and state investigations and the uncertain results of the new tariff law and other legislation. The year represented a selling movement in which investors and speculators liquidated heavily. During the entire year business men marked time while awaiting developments and showed a disinclination to take the initiative in making purchases for the future or otherwise extending their business operations.

The year 1914, although favored with much better crops, was marked, nevertheless, by a continuation of the unfavorable tendencies of 1913, the declines in most instances reaching such an alarming stage as to place the year on a par with the severe depression of 1907-1908. The security market, even before the closing of the exchanges on July 30 to prevent the wholesale liquidation of foreign holdings of American securities, was characterized by unprecedented dullness throughout the year. The first nine months' sales of shares during 1914 totaled less than three-fourths of the sales during the same period of 1913, although the latter year showed a decline of nearly 30 per cent. as compared with the first nine months of 1912. Bond sales likewise were small in volume and but slightly in excess of 1913, which year represented a decline of 30 per cent. in this respect as compared with 1912 and 60 per cent. as against 1911. The average price of representative stocks and bonds showed a material decline, even when compared with the very low figures of 1913, thus showing that the year was one of liquidation, not accumulation.

General business conditions also compared unfavorably with those of 1913, although the situation was somewhat better than that presented in the security market. Bank clearings show a decrease of nearly five per cent. as compared with the first nine months of 1913, while the September clearings were only three-fourths as high as in September of 1913. In the iron and steel business the leading plants were reported at the beginning of November to be operating at only about 40 to 45 per cent. of their capacity, and the orders for unfilled tonnage of the United States Steel Corporation declined nearly 33 per cent. during the first nine months of the year as compared with the corresponding nine months of the preceding year, and for the month of September totaled less than half the unfilled tonnage of January, 1913. Iron production, together with the prices for iron and steel, show a

very severe falling off. In further contrast to the situation in 1913, the following data will prove instructive. Building operations during September of 1914 were less than those of 1913 by over 26 per cent. Gross railroad earnings during the first nine months of the year, despite the very bad showing of 1913, show a further decline of over $79,000,000, and net earnings a most extraordinary decline of nearly $111,000,000, i. e. nearly 11.5 per cent. Incorporations were less than in the preceding year by more than 33 per cent., and business failures, as regards number and volume of indebtedness, exceeded those of any previous similar period, including the panic year of 1893.

In the last issue of the YEAR BOOK it was stated that all the leading divisions of our business activities showed a marked decline in 1913 with the exception of our foreign trade and the copper industry, the first showing a tremendous increase and the last having just about held its 1912 position. In 1914, however, even these two branches of American industry exhibited unfavorable tendencies. While the volume of the country's foreign trade has remained about the same, imports have gained tremendously on exports. During the fiscal year ending June 30 the net balance of exports was only 470 millions, as against 653 millions in 1912-1913, while during April-August, inclusive, imports actually reached such volume as to exceed exports. In the copper trade production is now going on at only about half the rate prevailing at the beginning of the year 1913, while the American visible supply in October was about four and one-half times that of the same month in 1913, and the price of the metal has declined by over 30 per cent.

Statistics.—In the tables on the following pages is presented a summary of business conditions in 1914 in contrast with those of 1913, as shown by those indices which are generally accepted as the truest barometers of industry and trade. The tables relating to stock-market activity, including summaries of "Shares of Stocks and Bonds Sold," "Average Security Prices," and "New Securities Listed," indicate the activity or lack of activity during the year in the security market and the condition of the investment demand. The tables relating to "Loans and Deposits of the New York Clearing House Banks" and "Domestic and Foreign Money Rates" furnish an idea of the conditions surrounding the money market during 1914; while the tables on "Bank Clearings," "Foreign Trade," "Crop Production," "Idle Cars," "Production of Iron and Copper," "Building Construction," and "Business Failures" will serve to furnish a view of the year's activity in mercantile and manufacturing lines. For purposes of comparison, the figures are given by months for the years 1913 and 1914, and to make possible a further comparison, the totals for the several items, wherever possible, are also given for 1912 and 1913.[1]

AGRICULTURE

Crop Production.—The grain-crop statistics of the United States for 1914, as indicated by the October report of the Department of Agriculture, present a more favorable showing than that described in last year's YEAR BOOK. In fact, the crop situation is the most satisfactory feature to be related in this year's description of economic conditions in the United States. Considering the five leading cereals, the estimated yield for 1914, as indicated by the accompanying table, shows a total of 4,945,000,000 bu., or an increase of 489,000,000 bu. over 1913, nearly 10 per cent.

The year's wheat crop is the largest ever harvested, the yield amounting to 892,000,000 bu., as compared with 763,000,000 bu. in 1913, an increase of 17 per cent. As was the case in 1913, this splendid showing was occasioned by the record yield of winter wheat, this crop amounting to 675,000,000 bu., or 152,000,000 bu. in excess of 1913. Corn, the nation's

[1] The author is indebted for many of the statistics presented in the following tables to the monthly compilations prepared from authentic sources by R. W. Babson, and issued periodically in "Babson's Desk Sheet of Tables on Barometric Figures for Business Conditions."

leading crop, shows an increase of 230,000,000 bu. over 1913, or 9.4 per cent. The yield, although considerably smaller than the record crop of 1912 (3,125,000,000 bu.), compares favorably with the average for the last ten years.

All the remaining important agricultural crops for 1914 present a favorable showing as compared with 1913. The estimated yield of oats is placed at 1,136,765,000 bu., or an increase of 1.3 per cent., and compares favorably with the ten-year average. The barley yield is estimated at 197,000,000 bu., an increase of 10.7 per cent. For rye the estimated yield is placed at 43,000,000 bu., or an increase of four per cent. over 1913; for potatoes, 382,000,000 bu., a 15 per cent. increase; for tobacco, 954,000,000 lb., the same as 1913; for hay, 69,000,000 short tons, an increase of 7.8 per cent.; for apples, 230,000,000 bu., an increase of 58.6 per cent. Only in the case of flaxseed and rice does the year's estimated yield show a falling off as compared with 1913, the respective yields of these two crops amounting to 17,000,000 bu., a 4.8 per cent. decrease, and 24,000,000 bu., a 6.8 per cent. decrease.

Cotton Production.—The Government's October statement placed the condition of the cotton crop at 73.5 per cent., as compared with 64.1 per cent. for 1913, 71.1 per cent. for 1911, the record crop year, and 68.5 per cent. for the 10-year average. Although the cotton acreage was lower by 580,000 acres than in 1913, the estimated yield is placed at 14,798,784 bales, as compared with 13,677,000 bales in 1913, or an increase of 12 per cent. The final crop report in December increased the October estimate by more than a million bales, raising it to 15,966,000 bales.

Prices of Staple Agricultural Products.—Despite the large yield of cereals, current prices are either about the same or considerably above those prevailing at this time in 1913. As a result of the war, prices are very high even after the slump from the speculatively high levels reached shortly after the commencing of hostilities, and the impression prevails generally that if the duration of the war should extend beyond the period of the fall and spring seeding in Europe, prices of American cereals will continue to rule high for many months. At the close of October, Chicago December wheat was quoted at $1.12¼, compared with $0.83 a year ago and a previous October high of $1.07½ in 1909. December corn was quoted at $0.66¾, compared with $0.67¼ a year ago and a previous October high of $0.66¾ in 1911. (See also XVII, *Statistics of Agriculture.*)

But while the war has helped most lines of agriculture, it has been the cause of the severest depression in the cotton industry, and recently spot cotton was quoted in the various southern markets at the very low price of 6 to 6½ cents. Owing to the abnormal decrease in foreign demand and the closing of the New York and Liverpool cotton exchanges, the American cotton market is now practically disorganized. Strenuous attempts, involving many proposed plans, were made during October to open the New York and Liverpool exchanges and to assist the cotton growers of the South in financing their present and prospective holdings of cotton, it being estimated that between four and five million bales will remain on their hands for some time before it can be absorbed by the market. According to press accounts (Oct. 31) an outlet for the tied up cotton markets was agreed upon at a conference of Federal-reserve and private bankers with Sir George Paish and B. B. Blackett, representing the British Treasury. According to this arrangement the New York and Liverpool cotton exchanges were to open simultaneously on Nov. 16, this also being the date fixed for the opening of the Federal reserve system. It was also reported that a group of New York bankers had agreed to underwrite a loan of about $10,000,000 to carry cotton brokers through the anticipated difficulties that they may encounter upon the opening of the exchange. The plan (and a similar one is being worked out for the assistance of brokers on the Liverpool Exchange) contemplates the making of loans to brokers to the extent of about $10,000,000, to be repaid by assessments against the commissions made after the resumption of business on the ex-

changes. In fact the likelihood of disaster to many brokers was one of the principal obstacles to be overcome in arranging for the reopening of the exchanges. It was realized that hundreds of brokers on the two leading exchanges had, at the beginning of hostilities, entered into contracts at prevailing prices, which were much higher than anything that could now be obtained. (See also XVII, *Agriculture.*)

CEREAL PRODUCTION

(000,000 omitted)

	1914, Estimated[1]	1913, Final	1912, Final	1911, Final	Previous Record
Winter wheat, bushels	675	523	400	431	593 (1906)
Spring wheat, bushels	217	240	330	191	330 (1912)
Corn, bushels	2,676	2,447	3,125	2,531	3,125 (1912)
Oats, bushels	1,137	1,122	1,418	922	1,418 (1912)
Barley, bushels	197	178	224	160	224 (1912)
Rye, bushels	43	41	36	33	36 (1912)
Total	4,945	4,551	5,533	4,268	5,661

[1] October estimate; the December estimate is given under XVII, *Statistics of Agriculture.*

IRON AND STEEL TRADE

Iron Production.—At the beginning of November the iron and steel business, one of the leading barometers by which to judge the nation's business conditions, was in the depth of gloom. While many of the press accounts expressed the hope that the demands of the war would improve this trade, there was little to indicate that the industry had thus far benefited from foreign orders; instead the statistics of iron production and unfilled orders still showed a declining tendency. For the reasons underlying the situation we need only turn to the declining building operations and the failure of the railroads to make extensions and renewals, owing chiefly to their low earnings, both of which will be referred to later.

The severe extent of the depression in the trade is indicated by the following data. For the first nine months of 1914 the production of pig iron in the United States totaled only 18,238,000 tons, compared with 23,959,000 tons for the corresponding nine months of 1913, a decrease of 23.9 per cent. Every month of 1914 shows a decided falling off from the production in the corresponding month of the preceding year. It should also be noted that the decline in production so noticeable in 1914 had its start in the preceding year. January of 1913 showed a total production of 2,795,000 tons; by September of that year the production was down to 2,505,000 tons, while during September, 1914, the production was only 1,883,000 tons, a decrease of nearly 33 per cent. compared with January, 1913. In the meantime the price of No. 2 foundry southern, which was $17.25 at the close of 1912 and $16.95 at the beginning of 1913, declined, despite the greatly decreased production, to $13.25 in September, 1914. At the beginning of November the quotation in Cincinnati was $12.90, compared with $14.25 in 1913, and a previous November high of $23.38 in 1906. This tendency toward lower prices and smaller production is entirely in keeping with the declining tendency to be noted for the year in other important lines of business customarily regarded as excellent barometers of trade.

The Steel Trade.—According to the October issue of the *Iron Age*, steel mills at Pittsburgh were reported to be operating only 40 to 45 per cent. of capacity, while the Chicago mills were said to be operating only slightly above one-third their capacity. At about this time in 1913 the United States Steel Corporation was reported to be operating at about 80 per cent. of capacity. The record of unfilled orders of the Steel Corporation, usually referred to as an excellent index of trade, shows an average of only 4,306,846 tons for the first nine months of 1914, compared with 6,410,005 tons in 1913 for the corresponding period, a

PRODUCTION OF IRON AND COPPER

	Pig Iron		Copper			
	Production, tons		Production, pounds		Visible Supply, pounds	
	1913	1914	1913	1914	1913	1914
January	2,795,000	1,885,000	143,000,000	131,000,000	105,312,000	91,438,000
February	2,586,000	1,888,000	130,000,000	122,000,000	123,198,000	87,296,000
March	2,763,000	2,348,000	136,000,000	146,000,000	122,302,000	78,371,000
April	2,752,000	2,270,000	135,000,000	152,000,000	104,269,000	64,609,000
May	2,822,000	2,093,000	141,000,000	142,000,000	75,549,000	70,337,000
June	2,628,000	1,918,000	121,000,000	141,000,000	67,474,000	84,343,000
July	2,560,000	1,958,000	138,000,000	140,000,000	52,904,000	106,111,000
August	2,545,000	1,995,000	131,000,000	70,000,000[1]	53,594,000	123,000,000[1]
September	2,505,000	1,883,000	131,000,000	70,000,000[1]	38,314,000	140,000,000[1]
October	2,546,000	1,778,000	139,000,000	.....	29,793,000	.....
November	2,233,000	1,518,000	134,000,000	.....	32,566,000	.....
December	1,983,000	1,516 000	138,000,000	.....	47,929,000	.....

[1] Estimated.

decrease of nearly 33 per cent. Moreover, as the year progressed the showing in this respect became worse. While the unfilled orders reported in February amounted to 5,026,440 tons, the figure dropped to 3,787,667 tons in September, or less than half the unfilled tonnage of 7,827,368 tons in January, 1913. The condition of dwindling orders and falling prices was general throughout the steel trade. (See also XIX, *Manufactures.*)

These unsatisfactory conditions naturally had their adverse influence on the earnings of steel-manufacturing corporations. Thus the United States Steel Corporation's last statement of earnings shows that the July-August-September earnings aggregate only $22,276,002, against $38,450,400 for the same quarter of 1913, a decrease of 42 per cent. The surplus for the quarter in 1914 is only $89,479, compared with $11,348,778 in 1913. The total earnings for the nine months ending Sept. 30, 1914, were $60,727,979, and the deficit for that period was $11,359,402, against total earnings of $114,097,014 and a surplus, after the payment of dividends, of $32,337,743 for the nine months ending Sept. 30, 1913. Such figures clearly warrant the recent action of the Corporation in reducing its quarterly dividend on the common stock from 1¼ to ½ of one per cent.

COPPER TRADE

The copper trade has suffered a greater decline than even the iron and steel business. For the first nine months of 1914 the production of copper, as reported by the Copper Producers' Association (the last two months being estimated from other sources as the statement was not published), totaled only 1,114 million pounds, as compared with 1,206 million pounds for the first nine months of 1913. Meanwhile the visible supply of the metal for the United States, which had declined to the exceptionally low figure of 29,793,000 lb. in October, 1913, rose to the unusually high figure of 140 million pounds at the close of September, 1914. It should be noted also that during each of the two months following the opening of the war, the production of the metal was estimated at 70 million pounds, only one-half the production during July. Since July the world's visible supply has also increased from 180,707,000 lb. to an estimated total of 216,000,000 lb. Checking the usual exportation of copper on a very large scale, the European War has materially affected the business, although recent reports indicate that exports of the metal to England and France are again beginning to assume large proportions. The situation has been further aggravated by the small home demand for the metal occasioned by the severe business depression.

In view of the piling up of the visible supply of copper despite the decreased production, the price of the metal has greatly declined, the quotation for electrolytic copper at the close of October standing at 11.33 cents, compared with 16.63 cents a

year ago and a previous October high average of 17.31 cents in 1912. In other words, a decline of 31 per cent. took place in the price of the metal during the year. This low price, along with the decreased production and increased supply on hand, has severely affected the price of copper securities. While the average price for 20 active and representative copper shares had reached the very low figure of 36.9 at the beginning of November, 1913, this average price fell to 32.9 on July 30, 1914, compared with 48.7 in October, 1912, 80 early in 1907, 28.6 late in 1907, and 60.8 in August, 1909.

FOREIGN TRADE

After a four-year period of continuous and in the main rapid expansion, the foreign trade of the United States suffered a severe check in the fiscal year ending June 30, 1914. As regards exports this check is accounted for chiefly by the decrease in trade with Canada and the countries to the south of us, over half of the decline being found in the exports of goods to Canada. Imports, on the other hand, reached a new high record, owing in large measure to the revised tariff which placed many articles on the free list and materially reduced the rates on many others. Until November, 1913, exports ran, month by month, considerably ahead of the results for the preceding year. Following the enactment of the new tariff law, however, exports began to diminish and continued month by month to be smaller than in the preceding year. In most months imports reached new high-record totals, and actually exceeded exports during April, May and June, 1914. The aggregate value of our merchandise exports for 1913-14 was $2,364,626,555, against $2.465,-884,149 in 1912-13 and $2,204,322,409 in 1911-12. Imports of $1,894,169,180 compare with $1,813,008,234 and $1,-653,264,934, leaving a net balance of exports of $470,457,375 during 1913-14, against $652,875,915 in 1912-13 and $551,057,475 in 1911-1912. (See also XX, *Trade, Transportation, and Communication.*)

Of the important features revealed by a detailed examination of the 1914 foreign-trade statistics, the following should be noted:

(1.) In 1912-13 the marked increase of our trade with Canada was especially noteworthy, exports to that country amounting to 415 millions in that year as compared with 329 millions in 1911-12, and imports to 120 millions as compared with 108 millions the preceding year. In 1913-14 exports to Canada show a decline of no less than 61 millions as against the previous year's record, while imports from Canada show an increase of 36 millions, thus reducing the balance in our favor by no less than 97 millions. Our trade with South America also declined appreciably, but the decline occurred almost wholly in the export trade. Disturbed business conditions in Mexico also resulted in a material decline in our exports to that country.

(2.) While the year 1912-13 showed a marked expansion in the exportation of nearly all classes of articles, the year 1913-14 exhibits a decrease in the volume of exports of nearly all leading commodities. Cotton is the most notable exception, owing to the larger crop and the higher price. The value of the exports of this commodity exceeded that of the preceding year by 63 millions, and the volume exported was also 16 per cent. larger. On the other hand, many of the articles which this country began to depend upon as substantially increasing our exports from year to year show a large falling off. Exports of iron and steel manufactures, for example, declined 47 millions, while breadstuffs declined another 45 millions. Generally speaking the largest declines occurred in the various classes of manufactures. (See also XIX, *Manufactures;* and XX, *Trade, Transportation, and Communication.*)

(3.) The decline in exports is not attributable to lower prices; instead prices in nearly all cases were about the same and in some important instances higher. This is particularly true in the case of corn and cotton, where the prices for 1913-14 were respectively 74.6 cents and 12.8 cents, as compared with 58.7 cents and 12 cents for 1912-13.

(4.) The import trade showed expansion in the great majority of arti-

cles, and particularly in those favored by the new tariff legislation.

These tendencies have continued since the end of the fiscal year 1914. Exports totaled only 420½ millions during July, August and September, as compared with 567 millions during the corresponding months of the preceding year. For the same three months, imports totaled 428 millions as compared with 447½ millions during the corresponding months of 1913. During July and August imports exceeded exports by over 25 millions, while in September exports exceeded imports, but by only 17 millions. This severe decline is chiefly traceable to the baneful effects of the European War. Thus, for the month of August published reports show that, with reference to the port of New York, exports to Germany declined from $9,539,286 in August, 1913, to $19,514 in August, 1914; to France, from 5½ millions to 1½ millions; to Belgium, from three millions to one-quarter of a million; to The Netherlands, from nearly five millions to less than two millions; to Italy, from 2⅞ millions to less than one-third of a million; and to South America, from about 10 millions to 3½ millions. Imports, as already shown, were not affected to nearly the same extent, due mainly to the large cargoes of goods *en route* for this country when the war began. The large volume of imports, however, is chiefly traceable to the greater inflow from South America as compared with the previous year. Imports from Europe to New York during August, on the contrary, totaled only $31,097,557, against $49,387,893 in August, 1913. France, Germany and Belgium contributed less than half the imports of the corresponding period a year ago, and Great Britain only 8½ millions as compared with 12½ millions in August, 1913.

FOREIGN TRADE

	Imports		Exports		Balance of Trade[1]	
	1913	1914	1913	1914	1913	1914
Jan.	$163,063,438	$154,742,923	$227,032,930	$204,066,603	$63,969,492	$49,323,680
Feb.	149,913,918	148,044,776	193,996,942	173,920,145	44,083,024	25,875,369
Mar.	155,445,498	182,555,304	187,426,711	187,499,234	31,981,213	4,943,930
April	146,194,461	173,762,114	199,813,438	162,552,570	53,618,977	— 11,209,544
May	133,723,713	164,281,515	194,607,422	161,732,619	60,883,709	— 2,548,896
June	131,245,877	157,529,450	163,404,916	157,072,044	32,159,039	— 457,406
July	139,061,770	159,677,291	160,990,778	154,138,947	21,929,008	— 6,095,908
Aug.	137,651,553	129,767,890	187,909,020	110,367,494	50,257,467	— 19,061,951
Sept.	171,084,843	139,204,267	218,240,001	156,188,790	47,155,158	16,984,523
Oct.	132,949,302	138,080,520	271,861,464	195,404,630	138,912,162	57,324,110
Nov.	148,236,536	126,467,062	245,539,042	205,878,333	97,302,506	79,411,271
Dec.	184,025,571	114,402,970	233,195,628	246,266,047	49,170,057	131,863,077
Totals	$1,792,596,480	$1,789,022,426	$2,484,018,292	$2,114,257,539	$691,421,812	$325,235,113

[1] Exports exceed imports throughout by amount given, except when marked (—), where imports exceed exports.

BUILDING OPERATIONS

Chiefly as the result of the war in Europe and the bad business conditions at home, building operations in the United States show a considerable decline during the first nine months of 1914 as compared with the corresponding period of 1913. The showing becomes particularly bad during September, when the returns for 156 cities show a contemplated outlay of only $54,679,326, or over 26 per cent. less than for the corresponding month of 1913, and nearly 22 per cent. below September, 1912. The largest declines are indicated by the returns from the larger cities, and gains of any importance are limited almost wholly to cities of the Middle West and West. After stating that "decreases of 70 per cent. or more, denoting a virtual suspension of operations, are all too common," the *Commercial and Financial Chronicle* gives the following summary in its review of the country's building operations:

For the period in 1914 [9 months] the contemplated expenditure at the 156

cities reaches, according to our compilation, a little over 655 million dollars, as against 698 millions in 1913 and 737 millions in 1912. Greater New York's figures are 118¼ millions, 123¾ millions and 178¼ millions, respectively, in the three years, and for the other cities, collectively, are 537½ millions, contrasting with 574½ millions and 559 millions. Twenty-four New England cities show an aggregate loss of 3 1-3 million dollars from 1913, more than accounted for at Cambridge, where operations last year were abnormally large. The 37 municipalities in the middle section (New York City excluded) exhibit 10 million dollars decrease, the Pacific Coast (13 cities) over 23 millions and the South (30 cities) 8½ millions. On the other hand the Middle West (28 cities) shows a merely nominal loss and the "Other Western" division, embracing the country west of the Mississippi River, except Arkansas, Texas, Oklahoma and the states on the Pacific Coast, also makes a favorable exhibit, the gain at 23 cities reaching 8¼ millions.

BUILDING CONSTRUCTION

(20 Leading Cities)

	1913	1914
January	$31,403,534	$29,819,106
February	33,488,802	31,339,484
March	46,702,029	54,678,980
April	54,746,603	48,934,834
May	50,641,821	50,648,007
June	48,978,095	51,929,870
July	44,408,338	50,617,332
August	39,259,602	34,168,381
September	39,073,309	33,932,356
October	36,556,917	31,103,174
November	29,509,945	21,749,227
December	43,803,310	.....

BUSINESS FAILURES

It was explained in the YEAR BOOK for 1913 (p. 330) that commercial failures during the first nine months of 1912 compared unfavorably with those for the year 1911, and that the failures of 1913 during the same period compared unfavorably with those for 1912. It should now be noted that failures for the first nine months of 1914 again greatly exceed those for the corresponding months of 1913 both as regards number and volume of indebtedness. According to R. G. Dun & Company's compilation, the 1914 showing for the first nine months is more unfavorable than that of any previous similar period. For this period defaults aggregate 12,641, against 11,712 in 1913 and 11,816 in 1912, and the indebtedness involved amounts to $271,918,021, against $196,746,376 and $153,544,360 respectively in the two preceding years. This unusually bad exhibit manifests itself along practically all lines of business. In its review of failures for the first nine months of 1914 the *Commercial and Financial Chronicle* states:

Manufacturing liabilities for the nine months totaled $94,195,478, against $88,058,194 in 1912. Trading debts, at $130,283,368, record a very large increase, 47 million dollars, most of which is to be found in dry goods and carpets, with the H. B. Claflin failure the conspicuous contributor. The failed indebtedness of brokers, agents, etc., was abnormally large, $47,439,175, comparing with $24,881,494. The unusual number of exceptionally heavy defaults accounts for the pronounced increase in the amount involved this year, and much the greater part of augmentation is in New York. In fact, of the aggregate increase of 75 million dollars, no less than 45 millions is to be found in New York, and a further 21 millions in Pennsylvania. Bank suspensions for the nine months were much greater in number than last year (161 contrasting with 85), and represented a much heavier total of liabilities, $49,486,228, against $8,899,613, of which nearly one-half occurred in the latest quarter.

It is also noteworthy that the failure situation became increasingly bad as the year progressed, the third quarter of the year being the poorest on record for that period. Four thousand firms with an aggregate indebtedness of $82,469,821 failed during the third quarter in the panic year of 1893. During the third quarter of 1914, however, the number of business disasters totals 4,497, with liabilities of $87,118,290. Every division into which failures are segregated shows an increase in the volume of debts as compared with 1913, but it is particularly in connection with brokerage concerns and banks that the failures have proved most disastrous. As regards banks, the third quarter of the year presents a list of 68 suspensions involving obligations of $20,864,916.

BUSINESS FAILURES

	Liabilities		Number	
	1913	1914	1913	1914
January	$19,295,981	$37,285,515	1,690	1,793
February	28,971,714	21,256,965	1,284	1,356
March	22,564,866	23,826,353	1,213	1,362
April	19,424,939	19,127,464	1,231	1,279
May	15,726,696	20,469,584	1,175	1,201
June	17,392,469	44,737,142	1,060	1,156
July	37,789,725	25,441,310	1,117	1,315
August	22,237,005	38,709,617	1,115	1,235
September	19,343,267	27,522,268	1,172	1,591
October	20,651,655	29,702,178	1,343	1,686
November	23,908,943	25,489,498	1,305	1,815
December	34,925,324	.....	1,591	.....
Total—				
1907	$290,582,171		10,991	
1908	259,341,727		14,873	
1909	146,763,569		12,430	
1910	195,223,045		12,109	
1911	189,358,591		13,062	
1912	202,085,974		14,647	
1913	282,232,584		15,296	

RAILROAD EARNINGS

Volume of Traffic.—In the last issue of the Year Book (p. 331) it was explained that the point of greatest difficulty with American railroads during 1911, 1912 and 1913, was the high cost of operation rather than a decrease in the amount of business handled or in gross income received. Thus, in 1913 the gross earnings of 463 American railroads, representing nearly the total mileage of the country, increased by the enormous sum of $136,168,743, or 9.97 per cent., during the first six months of the year as compared with the same period in 1912; while the net earnings, owing to a tremendous increase in expenses, rose only $26,799,669. During the fiscal year ending June 30, 1914, however, it is important to note that not only did expenses actually increase despite the utmost efforts at economy, but both gross and net earnings showed a considerable falling off. All the leading influences affecting the earnings of railroads were unfavorable during the year. Not only have trade conditions along nearly all lines been greatly depressed, but the agricultural yield of 1913, especially in the grain-growing sections, upon which this year's railway earnings are largely dependent, was considerably below normal. As a result of the record grain crop of 1912, the surplus of freight cars in 1913, despite the large increase in new cars, never exceeded 70,000, while in October an actual shortage occurred. During 1914, however, the surplus, as shown by the accompanying table, always reached large dimensions. That the year's volume of traffic is unsatisfactory is clearly indicated by the fact that for over half the year the surplus considerably exceeded 200,000 cars, and that even in the midst of the crop-moving season (Sept. 15) the surplus stood at 136,000 cars.

Comparison of Gross and Net Earnings.—The very unfavorable conditions now confronting American railroads are clearly shown in the *Commercial and Financial Chronicle's* classified compilation of gross and net earnings and expenses for 486 roads, this number including every road with annual earnings of $100,000 or more. This compilation shows that gross earnings for the fiscal year 1914 declined by $79,479,672, or 2.51 per cent., as compared with 1913. Expenses, despite unusual efforts at curtailment, increased by $31,434,374, or 1.43 per cent.; while net earnings show a most extraordinary decline of $110,914,046, or 11.47 per cent. Special reference should be made also to the fact that this unfavorable showing is common to all sections of the country, but particularly to the eastern, middle and middle-western groups

IDLE CAR FIGURES

(Fortnightly Reports of Net Surplus)

1912		1913		1914	
Jan. 3	135,938	Jan. 15	28,439	Jan. 1	188,850
" 17	90,285	Feb. 1	37,260	" 15	214,889
" 31	32,581	" 15	22,183	Feb. 1	209,678
Feb. 14	13,958	Mar. 1	31,381	" 14	197,052
" 28	7,842	" 15	37,775	Mar. 1	153,907
Mar. 13	3,043	April 1	57,988	" 15	124,865
" 27	18,708	" 15	57,498	April 1	139,512
April 11	79,389	May 1	39,799	" 15	212,869
" 25	138,881	" 15	50,294	May 1	228,879
May 9	130,098	" 31	50,908	" 15	238,642
" 23	116,201	June 14	63,927	" 31	241,802
June 6	86,386	" 30	63,704	June 15	232,334
" 20	67,718	July 15	69,405	July 1	219,540
July 4	64,024	Aug. 1	58,455	Aug. 1	196,665
" 18	68,922	" 15	54,425	" 15	172,145
Aug. 1	56,510	" 30	58,306	Sept. 1	163,326
" 15	43,901	Sept. 15	40,159	" 15	136,049
" 29	9,750	Oct. 1	10,374	Oct. 1	131,027
Sept. 12	*n* 8,620	" 15	*n* 6,048	" 15	151,982
" 26	*n*17,793	Nov. 1	*n* 1,842	Nov. 1[1]	170,096
Oct. 10	*n*31,579	" 15	22,652		
" 24	*n*49,981	Dec. 1	57,234		
Nov. 7	*n*51,259	" 15	101,545		
" 30	*n*36,401				
Dec. 14	*n*34,392				
" 31	17,058				

n = net shortage. [1] Publication discontinued.

RAILROAD EARNINGS AND EXPENSES

(Commercial and Financial Chronicle)

	Fiscal Year Ending June 30		Increase or Decrease	
	1914	1913	Total	Per cent
Gross Earnings				
Group 1 (18 roads), New England	$142,984,609	$145,410,374	—2,425,765	1.66
Group 2 (85 roads), East and Middle	750,570,073	772,468,751	—21,898,678	2.83
Group 3 (66 roads) Middle West	418,759,021	442,663,001	—23,903,980	5.62
Groups 4 and 5 (91 roads), Southern	412,182,415	402,157,860	+10,024,555	2.49
Groups 6 and 7 (78 roads), Northwest	693,175,794	710,157,653	—16,981,859	2.39
Groups 8 and 9 (98 roads), Southwest	479,173,615	498,762,530	—19,588,915	3.92
Group 10 (50 roads), Pacific Coast	184,136,105	188,841,135	—4,705,030	2.49
Total (486 roads)	$3,080,981,632	$3,160,461,304	—79,479,672	2.51
Expenses				
Group 1 (18 roads), New England	$109,063,238	$106,969,648	+2,093,590	1.95
Group 2 (85 roads), East and Middle	549,198,714	539,090,914	+10,107,800	1.87
Group 3 (66 roads), Middle West	335,292,593	324,475,313	+10,817,280	3.33
Groups 4 and 5 (91 roads), Southern	296,285,815	285,153,381	+11,132,434	3.90
Groups 6 and 7 (78 roads), Northwest	470,728,386	469,885,923	+842,463	0.18
Groups 8 and 9 (98 roads), Southwest	350,558,814	356,264,041	—5,705,227	1.60
Group 10 (50 roads), Pacific Coast	114,016,673	111,870,639	+2,146,034	1.91
Total (486 roads)	$2,225,144,233	$2,193,709,859	+31,434,374	1.43

	Mileage					
	1914	1913				
Net Earnings						
Group 1	7,768	7,778	$33,921,371	$38,440,726	—4,519,355	11.75
Group 2	26,829	26,584	201,371,359	233,377,837	—32,006,478	13.71
Group 3	25,879	25,845	83,466,428	118,187,688	—34,721,260	29.37
Groups 4 and 5	41,553	41,190	115,896,600	117,004,479	—1,107,879	0.94
Groups 6 and 7	67,971	67,303	222,447,408	240,271,730	—17,824,322	7.41
Groups 8 and 9	57,852	56,930	128,614,801	142,498,489	—13,883,688	9.74
Group 10	18,305	18,009	70,119,432	76,970,496	—6,851,064	8.90
Total	246,157	243,639	$855,837,399	$966,751,445	—110,914,046	11.47

of roads, where the net earnings declined by nearly $67,000,000. The southern group of roads alone shows a slight increase in gross earnings and the southwestern roads show a slight decrease in expenses. With reference to net earnings, however, these two groups present a decline of nearly $14,000,000. In presenting its very full exhibit of railway earnings the *Commercial and Financial Chronicle* reminds the reader that the showing is even more unfavorable than would appear from the figures, since net earnings as presented do not involve a deduction for taxes which showed a very material increase during the year. Thus, the *Chronicle* states:

> We have not attempted to compute the taxes ourselves for the latest fiscal year, but we notice that the Bureau of Railway Economics at Washington in its summary for June reports that taxes in the fiscal year 1914 increased $53 per mile in the case of railroads having annual operating revenues above $1,000,000. Applying this $53 per mile to the 246,157 miles of road represented in our compilation, it is found that the 1914 taxes exceeded those for 1913 by over $13,000,000. Taking the increase in taxes into account, therefore, the shrinkage in net earnings, now found to be, roughly, $111,000,000, is raised to $124,000,000. It should be remembered, too, that the stock and debt of the United States railroads are necessarily increased from year to year by new capital expenditures made necessary in order to maintain the efficiency and increase the capacity of the roads, and these new capital expenditures in turn add to interest and dividend requirements. Thus the situation is that, while larger net earnings were imperatively needed, they have instead been reduced by the sum of $124,000,000 in a single year.

BANK CLEARINGS

During the first nine months of 1914 bank clearings show a considerable falling off as compared with the corresponding period of 1913. The *Commercial and Financial Chronicle's* compilation shows the total clearings for the United States (compiled for 111 cities) during the first nine months of the year to be $119,780,469,235, as against $125,499,422,322 for the corresponding period of 1913, or a decrease of 4.6 per cent. This decrease is noteworthy since under normal conditions bank clearings, owing to the natural industrial development of the country and the increasing tendency to use check accounts, should show a considerable and consistent increase.

An analysis of the figures shows that the decline is traceable chiefly to the large decreases during August and September and the very poor showing made by such large financial centers as New York, Boston and Philadelphia. Thus, for the months of August and September the total clearings aggregated only $9,942,247,166 and $10,027,042,153, as compared with $12,391,433,472 and $13,446,947,898 in 1913. For September the 1914 clearings show a decline of 25.4 per cent. as compared with 1913. New York clearings show a drop of 40.6 per cent. for this month, Boston 19.8 per cent., and Philadelphia 14.3 per cent. Similarly, for August the loss in clearings for the whole country, as contrasted with the same month of 1913, is 19.8 per cent., the falling off at New York for the month being no less than 32.3 per cent.

A number of reasons may be assigned for this showing. The results for New York are explainable by the fact that it is the financial center of the country and therefore is sure to be affected severely by the adverse conditions resulting from the war, especially as regards the disarrangement of our export trade and the closing of the stock and cotton markets. The stock exchange, owing to the enormous turnover of transactions, has always been an important factor in bank exchanges, and this important market was closed from July 30 to Dec. 12. With reference to individual cities a conspicuous decrease is shown by Gary (nearly 33 per cent. for September), owing to the depressed condition of the steel trade. Large decreases are also shown at Houston, Galveston, Austin, Mobile, Savannah, and New Orleans, the figures reflecting the restricted movement of cotton, much of this leading staple being held on plantations and at gins until satisfactory arrangements can be made for its exportation to Europe.

BANK CLEARINGS

	Bank Clearings Outside of New York		Total Bank Clearings	
	1913	1914	1913	1914
January	$6,895,099,000	$6,826,299,000	$16,233,840,000	$16,198,120,000
February	5,819,962,000	5,626,553,000	13,614,567,000	12,864,109,000
March	6,253,797,000	6,405,191,000	14,140,021,000	14,254,781,000
April	6,233,822,000	6,351,245,000	14,289,153,000	14,899,762,000
May	6,157,074,000	5,927,511,000	14,119,582,000	13,166,043,000
June	5,955,899,000	6,101,888,000	13,709,419,000	13,946,091,000
July	6,209,538,000	6,311,878,000	13,554,458,000	14,492,363,000
August	5,629,239,000	5,361,047,000	12,391,433,000	9,942,247,000
September	5,968,776,000	5,398,918,000	13,424,633,000	10,027,042,153
October	7,001,363,000	6,124,307,000	15,694,859,000	11,733,744,000
November	6,280,855,000	5,682,274,000	13,867,739,000	11,081,715,000
December	6,675,932,000	6,114,902,000	14,675,931,000	12,644,557,000
Total	$75,081,356,000	$72,223,622,000	$169,715,635,000	$155,242,202,000

THE SECURITY MARKET

Volume of Stock Transactions.—Conditions in the security market in 1914 make a very unfavorable showing along nearly all lines as compared with even the poor years of 1910 to 1913 inclusive. As indicated by the volume of transactions, extreme dullness prevailed on the New York Stock Exchange during all of the year. Sales during the first nine months amounted to only 45,970,575 shares, as compared with 65,149,991 shares during the corresponding period of 1913, a decrease of 29 per cent. These small sales are noteworthy when compared with the corresponding totals of 92,294,988 shares in 1911, 95,604,426 in 1912, 136,000,000 in 1910 and 222,500,000 in 1906. Monthly transactions for the year were uniformly small, the total exceeding 7,000,000 shares in only three months, viz., January, April and July, while for May and June the transactions failed to reach five million shares.

The nine months' showing for 1914 was rendered particularly bad by the fact that the New York Stock Exchange was closed for over four months from the afternoon of July 30,

SECURITY MARKET TRANSACTIONS AND PRICES
(New York Stock Exchange)

	Total Transactions				Average Security Prices			
	Shares of Stock		Bond Sales		10 Leading Stocks		10 Leading Bonds	
	1913	1914	1913	1914	1913	1914	1913	1914
January	8,748,973	10,088,895	$54,903,500	$89,474,000	159.8	141.5	96.0	92.5
February	6,763,632	6,220,059	47,707,000	69,467,000	156.4	142.3	95.5	94.0
March	7,229,732	5,855,260	40,434,500	60,481,500	153.3	139.9	94.3	93.2
April	8,463,226	7,145,284	55,573,500	55,729,000	151.7	138.2	93.5	93.4
May	5,463,561	4,757,405	42,178,500	44,394,000	145.5	139.2	92.5	93.0
June	9,588,174	4,002,748	42,958,200	53,893,500	140.1	138.4	91.4	92.5
July	5,124,015	7,920,924	34,986,200	51,647,100	141.4	135.7	91.3	90.9
August	6,086,374	.....	29,489,000	.....	141.8	128.4[1]	92.0	89.5[1]
September	7,682,304	.....	34,931,120	.....	143.0	.....	92.5	.....
October	7,403,029	.....	41,118,500	.....	140.7	.....	91.8	.....
November	3,765,595	.....	31,707,000	2,630,500[3]	137.9	.....	90.7	.....
December	7,152,078	1,910,416[2]	45,584,000	34,806,500	137.3	.....	90.7	.....

Total, 1908	197,206,346
1909	214,632,194
1910	164,150,061
1911	127,207,258
1912	131,128,405
1913	83,470,693
1914	47,899,628

[1] Closing price, July 30. [2] Dec. 12–31 only. [3] Nov. 28 and 30 only.

RANGE OF STOCK PRICES DURING 1913 AND 1914

(New York Stock Exchange Quotations)

	1913		1914		
	High	Low	High	July 30	End Oct.[1]
Amalgamated Copper	80½	61⅝	78¼	49⅜	39¼
American Car & Foundry	56⅜	36½	53½	44¼	39
American Cotton Oil	57⅜	33½	46½	32	..
American Locomotive	44½	27	37¼	20¼	17
American Smelting & Refining	74¾	58½	71⅛	52⅜	47½
American Sugar	118	99⅞	109⅞	100	100
American Telephone & Telegraph	140	110	124¼	114	110½
Atlantic Coast Line	133⅜	112	126	114	..
Baltimore & Ohio	106⅜	90⅝	98⅜	72	61½
Brooklyn Rapid Transit	92¼	*83¼	94¼	79½	..
Canadian Pacific	266¼	204	220½	157½	149½
Chesapeake & Ohio	80	51⅞	68	41½	38½
Chicago, Milwaukee & St. Paul	116¼	96¾	107⅛	85½	77½
Chicago & Northwestern	138	123	136⅞	127½	120
Erie	32¼	20¼	32½	20½	17
Great Northern, pfd	132⅝	115½	134¾	114	105
Illinois Central	128⅞	102¾	115	106	101½
Lehigh Valley R. R.	168⅜	141½	156½	122	..
Missouri Pacific	43⅜	21¼	30	8	..
New York Central	109¼	90⅜	96⅝	77	73½
Northern Pacific	122⅝	101¾	118½	97	..
Pennsylvania R. R.	123⅜	106	115½	106	99⅜
Reading	171¾	151⅜	172¼	140	..
Rock Island	24⅛	11⅝	16⅝	⅞	..
Southern Pacific	110	83	99½	84⅞	76¾
Southern Ry	28⅝	19½	28¼	17¼	13½
Union Pacific	162¾	137¾	164⅜	113½	105
United States Steel	69½	49⅞	67¼	51⅞	39½

[1] Bid quotations for unofficial trading in New York. *x*=ex-dividend.

that date marking the beginning of the European War. Business was suspended also at the stock exchanges at Boston, Philadelphia, Baltimore, Pittsburgh and Chicago, as well as at nearly every other exchange and curb market in the United States. Even the customary auction sales of securities at New York, Boston and Philadelphia were suspended also, and security dealings were carried on only in a very limited way. The Chicago Stock Exchange was reopened on Nov. 23, with trading restricted to prices not below the closing figures of July 30. On Dec. 12 the New York Stock Exchange was reopened for trading in a limited number of stocks under similar restrictions. The result of the experiment was so successful that unrestricted trading was resumed on Dec. 15.

Stock Prices.—The dullness in the stock market was accompanied by a severe downward tendency in prices. During 1913 (*A. Y. B.*, 1913, p. 334) our table of quotations of representative railroad and industrial stocks, usually regarded as market leaders, showed that in nearly all cases the highest quotations of the years 1912 and 1913 were reached in 1912, and that in nearly all instances there was a severe decline in 1913 from the lowest prices quoted in 1912. The decline of 1914 is even more marked than that experienced during 1913, and the lowest prices were reached on July 30, when the New York Stock Exchange suspended operations. The table for 1914 shows that, almost without exception, the closing prices of July 30 were lower, and in the majority of instances very much lower, than the lowest quotations of 1913. Roger W. Babson's "Weekly Barometer Letter" gives the average price of 20 representative railroad stocks at 89.41 on July 30, compared with 104.43 in the closing week of October, 1913, 135 in January, 1906, 84 in November, 1907, and 131.5 in August, 1909. As regards 12 representative industrials the average price on July 30 is placed at 71.42, compared with 78.60 for the closing week of October, 1914, 98.7 in January, 1906, 55.7 in November, 1907, and 97.7 in August,

1909. Following the suspension of business on the New York Exchange, securities were dealt in on a limited scale on New Street, New York, and the column of quotations in the accompanying table for the unofficial trading in this market, as reported at the close of October, shows prices to have experienced a material reduction from the official quotations prevailing on July 30.

Bond Sales.—Bond sales were also affected adversely during 1914 by the closing of the New York Stock Exchange on July 30, but the comparatively small total of incorporations, to be noted later, contributed to the poor showing, especially with reference to the flotation of new issues. Bond sales on the New York Stock Exchange for the first seven months amounted to $425,086,100, as compared with $318,741,400 for the corresponding months of 1913. Only three months showed total transactions in excess of $60,000,000. As was the case with stocks, bond quotations have shown a decline during 1914. During 1913 the average price of 10 leading representative bonds, as pointed out in the last issue of the YEAR BOOK (p. 336), declined almost continuously from 96 in January to 91.7 in December. According to Mr. Babson's weekly compilation the average price of these investment bonds stood at 89.5 on July 30, 1914, compared with 107 in March, 1905, 88 in November, 1907, and 102.6 in February, 1909.

New Securities Listed.—While the first eight months of 1914 show an increase in the volume of new security listings on the New York Stock Exchange of $227,264,000 over the same period in 1913, the total is nevertheless small, amounting to only $832,733,300. This fact should be considered in conjunction with the very great decline in security prices. The small volume of new listings for 1914 and 1913 should also be compared with the large totals of 1,786 millions in 1912, 1,329 millions in 1911, 1,678 millions in 1910, and 2,439 millions in 1909. For only one month in 1914 did the listings of new securities exceed 200 millions, while for the month of May total listings but slightly exceeded the extremely small total of 30 millions.

LISTINGS OF NEW SECURITIES

	1913	1914
January	$50,929,050	$162,294,200[1]
February	60,812,000	98,916,200
March	43,250,000	82,302,700
April	21,806,715	57,515,400
May	131,520,450	30,014,000
June	59,001,000	62,632,500
July	200,065,000	234,534,000
August	38,085,000	104,524,300
September	27,657,100	7,774,000
October	102,176,000	42,359,000
November	146,114,000	68,855,500
December	87,322,000	12,437,400
Total, 1908	$1,415,448,150	
1909	2,439,656,870	
1910	1,678,147,570	
1911	1,329,616,345	
1912	1,786,986,170	
1913	968,738,315	
1914	964,157,200	

[1] Including $51,000,000 New York State bond issue.

INCORPORATIONS

Judging from the statistics, compiled by the *Journal of Commerce*, for the incorporation of companies in the eastern states with an authorized capital of $1,000,000 or more, new incorporations during 1914 present a tremendous decline as compared with

INCORPORATIONS OF $1,000,000 AND OVER

	1914	1913	1912	1911
January	$120,050,000	$332,450,000	$210,526,000	$356,219,000
February	51,575,000	191,500,000	166,300,000	172,400,000
March	57,700,000	166,030,000	159,578,000	139,910,000
April	136,185,000	198,718,000	281,457,000	58,690,000
May	62,700,000	172,200,000	140,284,000	163,195,000
June	70,050,000	79,550,000	280,170,000	152,550,000
July	68,700,000	83,650,000	253,518,000	195,850,000
August	50,600,000	63,500,000	164,500,000	87,350,000
September	54,800,000	42,750,000	115,050,000	77,004,000
October	35,487,500	70,856,300	169,495,000	124,220,000
November	81,650,000	77,800,000	154,200,000	150,593,400
December	105,450,000	55,250,000	200,100,000	159,450,000
Total	$894,947,500	$1,534,254,300	$2,295,172,000	$1,837,431,400

even the poor showing for 1913. Incorporations began to assume very small proportions with June, 1913, and the total for that year in the eastern states was only $1,534,254,300, or a decline of more than 33 per cent. as compared with 1912. During the first nine months of 1914, however, the total aggregated only $672,360,000, as compared with $1,331,348,000 during the corresponding period for 1913, a decline of nearly 50 per cent. The accompanying table shows that with the exception of January and April, when incorporations amounted to 120 millions and 136 millions respectively, incorporations occurred on a very small scale.

THE MONEY MARKET

Until the outbreak of the European War, the year 1914 showed an absence of credit stringency, owing principally to the reactionary tendency of business. Until this time the surplus reserves of the New York Clearing House banks were comfortably large, ranging from an average minimum of $15,503,188 in July to a maximum of $40,801,625 in June. Time-loan rates in New York ranged from a monthly average of 3⅞ to 4½ per cent., and call loan rates from 1⅝ to 2⅝ per cent. Deposits of the Clearing House banks also considerably exceeded loans, a desirable situation from the standpoint of judging the credit market.

Immediately upon the outbreak of the war, however, the situation rapidly took a turn for the worse, and the money market was required to meet important demands. So severe were these demands that money rates were largely a matter of negotiation. The Stock Exchange having closed, there was no regular market for call loans, and such transactions as did take place were reported at rates within a range of six to eight per cent. Time money during the first week of the war was quoted at eight per cent. for 60 and 90 days, seven per cent. for four months, and six per cent. for later maturities up to six months. Requests of interior banks upon the eastern banks for the return of loans placed for their accounts were generally refused, on the ground that, owing to the suspension of business on the Stock Exchange, the closing of loans would result in much inconvenience to borrowers. The immediate effect of the war upon the New York Clearing House banks is fully shown by the bank statement at the close of the first week following the war, when loans increased by $1,182,000, deposits at the same time decreasing by $46,776,000, cash decreasing by no less than $56,299,000, and surplus reserves decreasing by $43,599,500. In one week a surplus reserve was changed to a deficit of $17,425,750, as compared with a surplus above legal requirements of $26,208,100 in 1913. During each of the months of August and September the New York Clearing House banks held reserves on an average over $28,000,000 below the legal requirements, the loans at the same time exceeding the deposits. Moreover, the exports of gold during the five months, May to September, exceeded the imports by $123,646,857, a fact which helped to aggravate the financial situation (see also XIV, *Banking and Currency*).

At the outbreak of the war the market for sterling exchange also came to a complete standstill. To quote the *Commercial and Financial Chronicle* under date of Aug. 8:

> Having no credits abroad, foreign-exchange houses were unable to draw, and as the movement as a result of the heavy sales of American securities was all one way, and as, moreover, there was a very active demand to send relief to American tourists, there was an active demand for remittances. People anxious to make remittances to their relatives and friends abroad were willing to pay any price asked. In this way small transactions were made as high as $7.00 to the pound sterling for cable transfers. Later in the week some small amounts of business were reported on the basis of $6.25. Toward the close of the week the arrangement between J. P. Morgan & Co. and the Bank of France exerted a reassuring influence. The total gold engaged for Europe this week, including the shipments on the government cruiser Tennessee, is $9,423,000. In addition $11,380,000 was withdrawn for shipment to Canada. The latter represents the calling of their New York loans by the Dominion banks and is expected to continue, as New York exchange in Montreal closed at the high discount of $1.25 per $1,000.

MONEY MARKET CONDITIONS

	Loans, Deposits and Reserves of New York Clearing House Banks					
	Loans (000 omitted)		Deposits (000 omitted)		Surplus Reserves (000 omitted)	
	1913	1914	1913	1914	1913	1914
January	$1,337,945	$1,365,594	$1,349,170	$1,393,866	$17,193,000	$29,170,950
February	1,376,314	1,452,529	1,398,254	1,512,361	11,170,150	32,222,688
March	1,334,656	1,482,533	1,327,048	1,534,502	9,267,500	20,229,188
April	1,332,865	1,505,516	1,328,749	1,562,684	14,185,313	17,030,625
May	1,329,433	1,497,177	1,329,680	1,584,597	20,931,100	38,542,250
June	1,321,599	1,483,510	1,338,123	1,573,118	35,428,313	40,801,625
July	1,363,637	1,451,059	1,376,329	1,496,968	22,245,313	15,503,188
August	1,362,552	1,460,000*e*	1,373,416	1,450,000*e*	22,859,250	−29,080,000*e*
September	1,370,607	1,521,750*e*	1,362,525	1,479,750*e*	7,196,625	−28,000,000*e*
October	1,351,951	1,508,000*e*	1,336,970	1,460,000*e*	7,759,400	440,000*e*
November	1,337,558	1,495,000	1,324,101	1,485,000	10,085,885	72,253,685
December	1,307,703	1,501,757	1,283,585	1,457,125	10,229,125	117,935,538

− = Deficit. *e* = Estimated.

	Money Rates						Gold Movements	
	New York Monthly Average				Average Bank Rates, England, France and Germany			
	1913		1914					
	Time	Call	Time	Call	1913	1914	1913	1914
January	5	3	4½	2½	5	4⅞	+$11,027,288	$3,528,317
February	5	3¼	4	1⅝	5	3½	+7,016,938	+5,869,925
March	5⅜	4¼	4½	1⅝	5	3½	+13,695,591	5,210,200
April	5⅜	3¼	3⅜	1⅝	4½	3½	—1,003,369	3,053,038
May	5⅝	2¾	3⅜	1½	4⅜	3½	+7,906,232	+14,862,791
June	5⅝	2¼	3⅜	1½	4⅜	3½	2,817,659	+44,289,952
July	6	2½	4½	2¾	4⅜	3⅝	+794,457	+30,277,709
August	6	2½	6½	7	4⅜	5⅛	—4,609,096	+15,090,793
September	6	2⅞	6¾	7	4⅜	5½	—4,130,711	+19,125,612
October	5¾	3½	7	6¾	5	5½	—4,907,305	44,356,969
November	5¾	4	5⅞	5¾	4⅝	5⅛	377,824	7,134,753
December	5⅝	4⅛	4⅜	3½	4¾	5¼	+5,499,236	.....

+ = excess of exports.
— = excess of imports.

Even at the beginning of October rates for cable transfers were still quoted as high as $5.02¼, and demand bills at $5.01. By the middle of October the financial situation had sufficiently cleared to cause time loans to be made at six per cent. and call loans for the first time since the beginning of the war loaned under eight per cent. As reported by the *Chronicle* under date of Oct. 17:

> The significance of this reduction is that it marks a renewal of lending on stock exchange collateral. The banks have been fighting shy of this class of business, as they in most instances already had large amounts of loans outstanding based upon stock exchange collateral. These loans, in view of the closing of the Stock Exchange, could not be called in an arbitrary manner, but a consistent policy of urging the strengthening of such obligations, either in the form of deposits of additional collateral or by partial payments of the principal, has obviously been successful in clearing the situation, and the change in rates seems to suggest that the money situation has permanently entered upon a much more comfortable stage.

By the middle of October also, the New York Clearing House banks had reduced their deficit in reserves to $7,791,350. On Nov. 12 sterling exchange dropped to $4.89.

PRICES AND COST OF LIVING

Until the outbreak of the war, general commodity prices showed a material decline during 1914 as against the price levels which prevailed during the two years preceding. For the first seven months of 1914 Bradstreet's index number stood at 8.8046, compared with 9.2115 for the full year of 1913, 9.1867 for 1912, 8.71 for 1911, 8.98 for 1910, and 7.88 for 1900. The highest point during 1913 was reached in January, when the index number stood at 9.4935, while in January, 1914, the index number stood at 8.8857. Following this month the average price showed a gradual declining tendency until July, when the index number was only 8.6566. Similarly, as regards the London *Economist's* index number, which indicates the drift of commodity prices in England, the average level of prices for the month of July stood at 2549 against 2704 for the full year of 1913, 2699 for 1912, 2542 for 1911, and 2125 for 1900. The year's decline, however, should not cause us to lose sight of the fact that the average price level prevailing before the opening of the war was still considerably higher than the averages prevailing prior to 1910. Bradstreet's index number of 8.6220 for June, 1914, the lowest of the year, should be compared with 8.51 for 1909 and 8.00 for 1908.

The aforementioned decline is traceable chiefly to the present sluggish condition of domestic trade, buyers showing a general reluctance to purchase extensively for fear that existing prices would not be permanent. Many leading commodities, involving basic lines, such as iron, steel, lead, copper, oil, lumber, etc., were running very much below normal, and the price movement in such commodities clearly indicated rapid liquidation. It is surprising, however, owing to the severe business depression, that the general decline did not reach greater dimensions, the fundamental reasons, no doubt, being the same as those discussed in previous issues.

Following the outbreak of the war price index numbers took an immediate and violent rise. Bradstreet's index number rose from 8.6566 in July to 9.8495 in August, an increase of nearly 14 per cent., the London *Economist's* number from 2549 to 2780 in October, an increase of eight per cent., and Gibson's number from 58.9 in July to 68.6 in September, an increase of over 16 per cent. This violent rise was occasioned chiefly, on the one hand, by the greatly increased export demand for many articles which certain of the belligerent countries urgently needed, and on the other hand by our dependence upon those countries for many articles the supply of which was either entirely cut off or greatly curtailed by the war. As might be expected under conditions such as a great international war brings about, speculation became rampant and a great deal of the immediate rise in prices in the United States was speculative in character. In fact, following the first outburst of speculation during August, Bradstreet's index number declined from 9.8495 in August to 9.7572 in September and 9.2416 in October. The London *Economist's* number, however, shows the contrary for England, where the average price level rose from 2549 in July to 2565 in August, 2698 in September and 2780 in October, the latter figure being the highest thus far recorded by that index number.

INDEX NUMBERS

Year	Bradstreet's	London *Economist*	Gibson's
1900	7.88	2125	44.2
1901	7.57	1948	44.5
1902	7.88	2003	53.5
1903	7.94	2197	49.0
1904	7.92	2136	48.3
1905	8.09	2342	47.3
1906	8.41	2361	49.8
1907	8.90	2508	50.9
1908	8.00	2223	54.2
1909	8.51	2231	59.2
1910	8.98	2407	59.3
1911	8.7129	2542	56.9
1912	9.1867	2699	62.6
1913	9.2115	2704	58.1
1914:			
January	8.8857	2623	58.2
February	8.8619	2624	58.2
March	8.8320	2622	57.8
April	8.7562	2597	57.7
May	8.6224	2585	57.9
June	8.6220	2595	59.4
July	8.6566	2549	58.9
August	9.8495	2565	64.9
September	9.7572	2698	68.6
October	9.2416	2780	62.9
November	8.8620	2732	63.1
December	9.0354	2760	62.3

THE CONDUCT OF BUSINESS

The New York Stock Exchange.—While the year 1913 witnessed the adoption of numerous statutes and stock-exchange rules which vitally affected the conduct of business on this, the nation's leading exchange (*A. Y. B.*, 1913, p. 339), the year 1914 witnessed the closing of the Exchange from July 30 to Dec. 12, during all of which time the Exchange sought to control dealings in securities in a manner best adapted to meet the unprecedented situation occasioned by the great war. The rush of European investors to their stock exchanges to turn their securities into cash made the closing of American stock exchanges, as well as the curb and auction markets, an absolute necessity. Violent liquidation first converged on the Paris Bourse, which was obliged to stop business under orders of the Government. Next, the selling movement overwhelmed the London market, where the continental liquidation was so enormous and the withdrawal of gold as a result so formidable as to force the closing of this exchange also. Owing to the reasons just mentioned in connection with the London Exchange, it was necessary for the leading American exchanges to follow suit. On most of them July 30 was the last day of trading.

As a sequence to the closing of the market, the New York Exchange issued numerous rules and communications for the guidance of its members in their security dealings. Briefly enumerated the most important of these rules and communications are the following:

(1.) The Special Committee of Five announced that it would not recommend to the Governing Committee the reopening of the Exchange until in its judgment the financial situation should warrant it, and that ample notice would be given of the proposed reopening.

(2.) On Aug. 5 the Special Committee of Five ruled that the interest rate on all borrowed and loaned stock should be six per cent. This rule was modified on Aug. 11 to the effect that all loans of stocks made between members might be at rates of interest subject to agreement between the parties to the transaction, but not in excess of six per cent.

(3.) On Aug. 15 all members of the Exchange were advised that when the Exchange was ordered closed the Governing Committee intended that all dealings in securities should cease pending the adjustment of the financial situation. In the communication it was admitted that cases might occur which would warrant making an exception to this rule, "provided such dealings were for the benefit of the situation and in no sense of a speculative character, or conducted in public." The communication further stated that: "Any member, however, taking part in such transactions must have in mind his loyalty to the Exchange, whether or not he is living up to the spirit of its laws, and that he is not committing an act detrimental to the public welfare."

(4.) On Aug. 10 the Special Committee of Five ruled that borrowed and loaned stocks must be marketed at the closing prices of Thursday, July 30, 1914, at the request of either party to the loan. In this connection it is also worthy of note that the Comptroller of the Currency requested national banks to value their collateral at the closing prices of July 30, and that various insurance commissioners have permitted insurance companies to issue their statements on the basis of these closing prices.

(5.) On Aug. 11 the Special Committee of Five ruled that: "Whenever a loaner of stocks gives one day's notice of willingness to have the same returned and the borrower fails to so return, the interest thereon shall cease." Announcement was made that the Clearing House of the Exchange was prepared to advise and assist in making new stock loans and that inquiries should be made in person at the Clearing House.

(6.) On Aug. 12 the Committee of Five made the very important ruling that members of the Exchange desiring to buy securities for cash *must* send a list of the same to the Committee on the Clearing House, giving the amounts of securities wanted and the prices they were willing to pay, and that no offers to buy at less than

the closing prices of July 30 would be considered. The same ruling also applied to members of the Exchange who desired to sell securities, and it was added that such selling orders would be considered only if they were made in order to relieve the necessities of brokers or their customers. On Aug. 14, a further rule was announced to the effect that "members or their firms making transactions in listed stocks and bonds must furnish to the Committee on the Clearing House, daily, at the close of business, a statement showing all purchases and sales of such securities, from whom purchased or to whom sold."

(7.) On Sept. 19 the Committee of Seven, representing the investment bankers, after conference with the Committee of Five of the New York Stock Exchange and the New York Clearing House Committee, made an important ruling relative to the buying and selling of unlisted bonds. Prior to that date the Committee had limited trading in such bonds to closing prices of July 30, and bond houses were not allowed to solicit business. According to the new ruling all trades were subject to the approval of the Committee, and investment houses were free to offer bonds owned by themselves without apparent restrictions as to prices or manner of sale. With reference to bonds not owned by the dealer, however, it was recommended that all transactions should be made before the Committee, while business in listed bonds was made subject to the approval of the Stock Exchange Committee of Five.

(8.) With reference to unlisted stocks the Committee of Five ruled that all proposed transactions must be submitted to the Committee and must be transacted in accordance with its regulations. The Committee on Unlisted Stocks also issued a rule in the week ending Oct. 17, allowing trading in unlisted stocks which were selling at $10 or under on July 30. This ruling was an amendment to the previous ruling which placed the limit at $3. Since nearly all mining shares and several important industrial stocks listed in the New York "Curb Market" come under the above rule, a partial resumption of curb trading was undertaken on Oct. 14. The trading, however, lasted only a short time and had practically ceased by noon. The curb market was not reopened until the reopening of the Stock Exchange in December.

(9) The Committee decided to reopen the Exchange on Dec. 12 for trading in a limited number of securities at prices not below the closing quotations of July 30. In the first session nearly all the stocks opened at advances over the minimum prices. The result of the experiment was so successful that full trading was resumed on Dec. 15 and the Committee was dissolved.

Regulation of Stock Exchanges.—Much attention has been devoted in the press to a discussion of the so-called Owen Stock Exchange bill (S. 3895, 63d. Cong., 2d sess.), providing for the incorporation and regulation of stock exchanges, which was introduced in the Senate on Jan. 12, and reported to the Senate by the Committee on Banking and Currency during the last week in June. The bill contains many far-reaching features. It not only aims to bar from the mails and from telephone and telegraph communication all messages concerning transactions on any stock exchanges not incorporated under state laws, but contains several provisions the adoption of which would radically alter present methods of conducting the brokerage business. The most important sections of the bill regulating the conduct of the brokerage business are the following:

(1.) Exchange members are forbidden, under penalty of expulsion, "from hypothecating any security belonging to their customers or others for any amount in excess of the sum at the time owing such members thereon or from entering into any arrangement or agreement with such customer or others for such use of their securities." One of the statutes adopted by the state of New York in 1913 (*A. Y. B.*, 1913, p. 340) contained a similar provision but permitted such hypothecation if the customer consented. The Owen bill, it will be observed, expressly makes it impossible for customer and broker to effect an arrangement such as is contemplated under the New York legislation.

(2.) The regulations of exchanges after their incorporation as per the

bill, must forbid members, under penalty of expulsion, from lending securities pledged with them or from making any agreement with their customers with respect thereto. This section of the bill, if retained, would virtually disrupt the market as far as short sales are concerned.

(3.) Members of exchanges, following incorporation as per the law, must keep full and accurate books, open at all times to the inspection of the officers of said exchange, or of such examiners or other persons as may be designated for that purpose by the Postmaster-General. This section has for its purpose full publicity.

(4.) No order, direction or offer to purchase securities can be accepted or executed by any member of such exchange unless the broker shall have received from the customer a partial payment in cash of not less than 20 per cent. of the market price of said stock on the day of purchase. (See also I, *American History.*)

Regulation of Cotton Trading.—The fact of chief importance relative to the cotton market was the passage of the Smith-Lever Cotton Futures Act, which became a law on Aug. 18, and which marks the culmination of the long series of attempts at legislation of this kind, referred to in the last issue of the YEAR BOOK (p. 343). The law, which goes into effect six months after its passage, imposes a tax of two cents per pound of cotton ($10 a bale) sold for future delivery on any exchange, board of trade, or similar institution, in case such transaction does not comply with the law. Furthermore, the trading must be in accordance with the standards fixed at various times by the Government, no grade to be changed except under one year's notice. Each contract of sale of cotton for future delivery must be in writing, or evidenced by a written memorandum showing the terms of the contract, including the quantity involved and the names and addresses of the buyer and seller, and must be signed by the party to be charged or by his agent on his behalf. It is expressly stated that no tax shall be levied on any contract that complies with all of the above conditions.

In case of a dispute arising between the person making the tender and the person receiving the same, as to quality, grade and length of staple, either party may refer the question to the Secretary of Agriculture for determination, and the costs of settlement shall be fixed, assessed and collected in accordance with the rules and regulations prescribed by the Secretary of Agriculture. All the leading provisions of the law are deemed to be fully incorporated in any contract if there be written on it the phrase "subject to United States Cotton Futures Act, Section Five." Moreover, the findings of the Secretary of Agriculture in any dispute referred to him, after the interested parties have had an opportunity to be heard, shall be accepted in the courts of the United States in all suits between such parties as *prima facie* evidence of the true quality, grade or length of staple of the cotton involved. The law also includes the following important provisions:

(1.) That the differences above or below the contract price which the receiver shall pay for cotton of grades above or below the basis grade in the settlement of future contracts shall be determined by the actual commercial differences in value thereof upon the sixth business day prior to the day fixed in accordance with the law for the delivery of cotton on the contract, established by the sale of spot cotton in the market where the future transaction involved occurs and is consummated. In other words the law supplants the "fixed-difference system," heretofore prevailing on the New York Cotton Exchange, by the "commercial-difference system."

(2.) That the only markets which shall be considered *bona fide* spot markets shall be those which the Secretary of Agriculture may, from time to time, after investigation, determine and designate to be such, and of which he shall give public notice. The law, however, provides that the Secretary of Agriculture shall consider only markets in which spot cotton is sold in such volume and under such conditions as customarily to reflect accurately the value of middling cotton and the difference between the prices of values of middling cotton and of other grades of cotton for

which the standards shall have been established by him.

(3.) That the Secretary of Agriculture is authorized from time to time to establish and promulgate standards of cotton by which its quality or value may be judged or determined, including its grade, length of staple, strength of staple, color and such other qualities, properties and conditions as may be standardized in practical form, which, for the purpose of the Act, shall be known as the "official cotton standards of the United States."

(4.) That no contract for future delivery which fails to conform to the requirements of the Act shall be enforceable in any court of the United States by, or on behalf of, any party to such contract.

(5.) That any person liable to the payment of the tax provided by the Act, who fails to pay the same or evades or attempts to evade payment, and any person otherwise violating any provision of the Act, shall be deemed guilty of a misdemeanor, punishable with a fine not less than $100 nor more than $20,000, and, in the case of natural persons, a possible additional punishment by imprisonment for not less than 60 days nor more than three years, in the discretion of the court.

Vigorous criticism was directed against the bill by members of the New York Cotton Exchange, especially since it imposed a prohibitive tax on transactions made by New York brokers on the Liverpool Exchange. As was stated by the *Commercial and Financial Chronicle* in its issue of Aug. 22:

> With the present disturbed condition of the cotton market here and abroad—the exchanges being closed—it is considered exceptionally unfortunate that Congress should have enacted this legislation. Although the new law does not go into effect for six months, cotton brokers say that the hardships imposed by it will be felt in the readjustment of the cotton transactions that is to follow the moment the exchanges reopen. No one knows when business will be resumed and in the meantime the so-called "six-months' grace" is being exhausted. It is agreed that, with the opening of the Liverpool Exchange, New York brokers will, of necessity, make heavy commitments there. Many of the contracts bought and sold prior to the date the new law becomes effective will require the making of hedging transactions subsequent to the day the law became operative, and consequently brokers will be obliged to pay the high tax of $1,000 for the purchase or sale of 100 bales of cotton.

Lastly, brief reference should be made to the National Cotton Conference held at Augusta in May, attended by representatives of nearly all the leading cotton exchanges of the country. The Conference recommended the adoption of the Government standardization of spot cotton by all American exchanges, and resolved to request the United States Government to adopt the international standards as agreed upon at Liverpool last year and which went into effect on Sept. 1, 1914. It may be added that a so-called National Association of Cotton Exchanges was also organized following the adjournment of the National Cotton Conference.

The Federal Trade Commission.—By an Act approved Sept. 26 Congress created a Federal Trade Commission, consisting of five commissioners, and in the same Act legislated the present Bureau of Corporations out of existence, all pending investigations and proceedings of the Bureau to be continued by the Commission. Unfair methods of competition in commerce are declared unlawful by the Act, and the commissioners are empowered "to prevent persons, partnerships, or corporations except banks and common carriers subject to the Acts to regulate commerce, from using unfair methods of competition in commerce." It also provided that:

> Whenever the Commission shall have reason to believe that any such person, partnership or corporation has been or is using any unfair method of competition in commerce, and if it shall appear to the Commission that a proceeding by it in respect thereof would be to the interest of the public, it shall issue and serve upon such person, partnership or corporation a complaint stating its charges in that respect, and containing a notice of a hearing upon a day and at a place therein fixed at least 30 days after the service of said complaint.

The history of the legislation, and of the anti-trust program of which

it formed a part, is given on another page (see I, *American History*), and the details need not be here discussed. Section 6, however, is of vital significance since it gives large powers to the Commission along a number of important lines. Briefly stated these are:

(1.) To gather and compile information concerning, and to investigate from time to time the organization, business conduct, practices, and management of any corporation engaged in commerce, except banks and common carriers subject to the Act to regulate commerce.

(2.) To require these corporations to file such annual or special reports, and to answer in writing such specific questions, as may be prescribed by the Commission.

(3.) To make investigation upon its own initiative, whenever a final decree has been entered against any defendant corporation in any suit brought by the United States to prevent and restrain any violation of the anti-trust acts, of the manner in which the decree has been or is being carried out, and upon the application of the Attorney-General it shall be the duty to make such investigation. All findings in this respect must be transmitted to the Attorney-General, but the degree of publicity of the report shall depend upon the discretion of the Commission.

(4.) To investigate and report the facts relating to any alleged violation of existing Anti-Trust acts by any corporation, upon the direction of the President or either House of Congress.

(5.) To investigate, upon application of the Attorney-General, and make recommendations for the readjustment of a corporation alleged to be violating existing Anti-Trust acts.

(6.) To make public such information as shall be deemed expedient in the public interest, except that trade secrets and names of customers may not be published.

(7.) To investigate from time to time trade conditions in and with foreign countries where associations, combinations, or practices of manufacturers, merchants, or traders, or other conditions, may affect the foreign trade of the United States, and report to Congress thereon, with such recommendations as it deems advisable.

Blue-Sky Laws.—The last issue of The YEAR BOOK contained an extended reference (p. 341) to the so-called blue-sky laws adopted in at least 19 states. The year 1914 is noteworthy in that the general plan of this type of legislation as it now exists has fallen under judicial condemnation in two states, Michigan and Iowa. In Michigan the United States Court for the Eastern District of the state declared the law unconstitutional on a number of grounds. The Court held (1) that the Act deprived the plaintiffs of liberty and property, since the right to issue and sell, or to buy and sell securities, is property and liberty under the familiar definitions; and (2) that the statute is not a valid exercise of the police power of the state since it does not deal with common carriers, etc., and since the buying and selling of securities are no more "affected by a public interest" than are the buying and selling of such articles as groceries; moreover that the Act is unconstitutional because its provisions constitute a direct and substantial burden on interstate commerce. Particular sections of the law were also referred to by the court as exceeding the police powers of the state. The opinion gives a very forcible statement of what are regarded as the inherent defects of the measure, and since those defects are found in nearly all of the laws now on the statute books, the following paragraph of the opinion will prove instructive:

> We take judicial notice of the common understanding that this "Blue-Sky Law" was intended, as is said by the Attorney-General, "to stop the sale of stock in fly-by-night concerns, visionary oil wells, distant gold mines and other like fraudulent exploitations." If just this intent had been carried into effect by the Act as passed, these cases would not be here; but scrutiny of the law discloses additional and very different effects. It is not confined to corporations, but covers partnerships issuing, and individuals dealing in, securities; it does not relate alone to stocks, but as well to bonds, mortgages and promissory notes; it is not limited to investment companies, as that term would ordinarily be defined, but extends the defi-

nition so that it may include most of the private corporations and partnerships in the United States; it does not cover fraudulent securities merely, but reaches and prohibits the sale of securities that are honest, valid and safe; it does not simply protect the unwary citizen against fraudulent misleading, but it prevents the experienced investor from deliberately assisting an enterprise which he thinks gives sufficient promise of gain to offset the risk of loss, or which, from motives of pride, sympathy or charity, he is willing to aid, notwithstanding a probability that his investment will prove unprofitable.

The Iowa law in its essential features is similar to the Michigan statute and was condemned upon the same grounds, although the case was decided by the State District Court of Polk County instead of by a Federal court. Briefly stated, the court declared the law unconstitutional in that it deprives persons of liberty and property without due process of law, in that it delegates legislative powers to state officials, and because it discriminates between residents and non-residents and interferes with interstate commerce.

Following the rendering of these two opinions the Investment Bankers' Association of America prepared a proposed model blue-sky law which it was felt would meet the Association's original purpose of coöperating with the state officials in an effort to obtain reasonable and effective legislation. In doing this the Investment Bankers' Association succeeded in obtaining the coöperation of the National Association of State Bank Supervisors. The objects of this model bill, a full copy of which may be found in the *Commercial and Financial Chronicle* for Sept. 19, are summarized by the *Chronicle* as follows:

> This proposed act is intended to bear down heavily on so-called "get-rich-quick" concerns. It is based, primarily, on a penal prohibition against fraud and misrepresentation. It requires the filing with the state official of detailed information as to all speculative offerings. It also requires notification to be given to the state official of all offerings, and gives him power to subject any offering that he deems dangerous to the provisions of the law relative to speculative securities. All securities sold to yield over 10 per cent. per annum, or with the representation that they will double in value, are declared to be speculative, and are subjected absolutely to the requirements of the act. There is no power in the state official to prohibit the sale of any security, but if he finds that the promotion involves a violation of the law, he is required to notify the promoter and also the district attorney of the county in which he is doing business, and the promoter is then required to advise the district attorney of any further steps taken by him in the promotion of the security. The purpose of the law is to put suspected offerings directly up to the prosecuting official, giving broad powers of investigation to uncover fraud.

The Foreign Trade Council.—With a view to enlarging the nation's foreign trade a Foreign Trade Council was created in May by the National Foreign Trade Convention. The purpose of the Council is to coördinate the nation's foreign-trade activities in an aggressive and systematic extension of American over-sea commerce. Practically all branches of industry, commerce, transportation and finance, representing all sections of the country, are represented in the membership of the Council. According to reports one of the first objects of the Council will be the appointment of a committee to coöperate with a committee of the Chamber of Commerce of the United States of America. Information and advice will be sought from manufacturers' associations and commercial organizations throughout the country. Another purpose is to make arrangements for another National Foreign Trade Convention in Washington during the early part of 1915 for a systematic and practical discussion of foreign-trade problems.

Commercial Attachés.—The Legislative, Executive and Judicial Appropriation Act contained an appropriation to create a new service of trade promotion abroad by the appointment by the Department of Commerce of commercial attachés accredited to the embassies and legations of the United States in foreign capitals. Appointments to this service have been made as follows: London, Albertus H. Baldwin; Paris, Dr. C. W. A. Veditz; Berlin, Erwin W. Thompson; Peking, Julean H. Arnold; Buenos Aires, Dr. Albert Hale; Rio de Janeiro, Lin-

coln Hutchinson; Lima, A. I. Harrington; Petrograd, Russia, Henry D. Baker; Santiago, Verne L. Havens.

Leading Decisions of Courts and Commissions.—The year witnessed the rendering of numerous decisions of momentous consequences to the business community. In addition to the two decisions declaring blue-sky laws of the prevailing type unconstitutional, the following decisions deserve special mention:

(1.) The U. S. Supreme Court decision in the Inter-Mountain cases upheld the action of the Interstate Commerce Commission. The significance of the decision can hardly be overestimated. The Interstate Commerce Commission had interpreted its powers, as obtained under the law of 1910, as extending to anything it might consider necessary to do in the fixing and regulating of rates, such as making and unmaking traffic centers, decreeing whether natural advantages should be overcome by the prescribing of rates, etc. In this particular instance the cases involved the interpretation and application of the long-and-short-haul clause, as amended by the Act of 1910, and the question at issue was: Should the carriers be allowed to charge more for the shorter haul to inter-mountain territory in certain states than for the long haul to the Pacific Coast? The Commission ordered a readjustment of existing rates, but the Commerce Court, since abolished, overruled the Commission. Now the Supreme Court reverses the Commerce Court, and in its opinion declares that the Commission possesses the powers assumed by it. The general interpretation of the decision is to the effect that the Interstate Commerce Commission now possesses supreme control with full liberty to regulate rate making in accord with its own views as to what any particular situation may demand. (See also XX, *Railroads.*)

(2.) The U. S. Supreme Court decision in the Shreveport Rate Cases is to the effect that, where the two are in conflict, Federal control is supreme over state control. The states, however, retain control over rates within their own borders, their control being subordinate to that of the Interstate Commerce Commission only where action by the state results in interference with the rates and action of the Commission in its exercise over interstate commerce. A decision to the contrary would have rendered the Interstate Commerce Commission helpless as against undesirable interference by the several states. (*Ibid.*)

(3.) The U. S. Supreme Court decision in the Tap Line Cases upheld the Commerce Court and reversed the Interstate Commerce Commission. So-called tap lines (short railroads serving industries) are declared to be common carriers, and, therefore, entitled to divisions of joint through rates. The Interstate Commerce Commission, on the contrary, had taken the view that such divisions of rates were to be regarded as concessions to favored shippers. The Supreme Court decision is of special significance at this date in that it removes the basis from the argument of those who have been contending that railroads should be refused an advance in freight rates, and that, instead of receiving such an advance, payments to tap lines on joint rates should be discontinued. (*Ibid.*)

(4.) The U. S. Supreme Court decision on the power of a state over insurance. A Kansas statute, adopted in 1909, provided that "when the Superintendent shall determine any rate in excess or unreasonably high or inadequate to the safety or soundness of the company [fire-insurance company], he is authorized to direct the company to publish and file a higher or a lower rate, which shall be commensurate with the character of the risk; but in every case the rate shall be reasonable." The constitutionality of this law was contested, and in May the Supreme Court affirmed the power of a state to fix rates for fire insurance. The case was awaited with much interest and is expected to have a powerful effect upon legislation of this character. (See also XIV, *Property and Casualty Insurance.*)

(5.) By a decision in the Federal District Court at New York, in the government suit to dissolve the combination known as the North Atlantic Steamship Conference, such confer-

ences were held to be legal if the combination is not an unreasonable one. In this particular instance the court found that the arrangement complained of "is a reasonable one which, so far from restraining, really fosters and protects it [trade] by giving it a stability which insures more satisfactory public service for all concerned." The court took a view in favor of a regulated as contrasted with a "cut-throat" competition, and Justice Lacombe quoted the report by the Committee on the Merchant Marine and Fisheries to the House of Representatives on "Steamship Agreements and Affiliations in the American Foreign and Domestic Trade" (see XX, *Merchant Marine*), to the effect that the only alternative to a conference would be either rate wars which would eliminate the weak, "or, to avoid a costly struggle, they would consolidate through common ownership, which would mean monopoly fully as effective, and it is believed, more so, than can exist by virtue of (this) agreement."

Other important court decisions and rulings of the Interstate Commerce Commission of the year, including the decision in the Advance Rate Case, are recorded in Department XX, *Trade, Transportation, and Communication.*

(6.) Report of Interstate Commerce Commission and decree of dissolution relative to the New York, New Haven & Hartford Railroad Co. In response to a resolution adopted by the Senate on Feb. 7, the Interstate Commerce Commission made a report on July 11 severely criticising the financial management of the New Haven Railroad, which is reviewed on another page (see XX, *Railroads*). The Commission recommended civil and criminal prosecution of the responsible directors of the road, and also of the persons who were concerned in the several stock deals condemned in the report. The Government also brought suit for dissolution against the Company, and the decree of dissolution in this suit was filed before Judge Mayer, in the U. S. District Court at New York on Oct. 17. According to the decree three sets of trustees are provided for. The first set has charge of the Boston & Maine Railroad Co.'s stock held by the New Haven, and the decree provides that there shall be immediately transferred to these trustees all of the common and nearly all of the preferred stock held by the New Haven in the Boston & Maine Railroad. Furthermore, the New Haven is to transfer the shares of a considerable number of railroad lines, which were leased to the company, to these trustees. The second set of trustees is to have charge of the New Haven's holdings of trolley lines in New Hampshire, and the third set the trolley holdings in Rhode Island. The decree also states fully the duties of each set of trustees. On Nov. 2 an indictment was handed down in the Federal District Court at New York, charging a criminal conspiracy to monopolize transportation in favor of the New Haven. Twenty-one of the accused men have been directors, and five are still in the Company's directorate. Forty-eight other men, former directors, are charged with having been "co-conspirators." The indictment relates to conduct extending back many years, in fact, to nearly the date of the Sherman law, which wrongful conduct, it is claimed, has continued almost to the present time. The general charge is that a conspiracy was entered into by the accused to drive other carriers from the field, and to substantiate this charge nearly every purchase or acquisition over a long series of years is set forth in the indictment.

XIV. PUBLIC FINANCE, BANKING, AND INSURANCE

PUBLIC FINANCE

C. C. WILLIAMSON

FEDERAL FINANCE

Appropriations for 1915.—The grand total of regular, miscellaneous and permanent appropriations for 1914-1915 amounts to $1,089,408,777. The original estimates called for $1,112,415,382. (See also V, *The National Administration.*)

Receipts and Expenditures.—The following table shows the ordinary receipts and expenditures, and the financial transactions of the Panama Canal, for the fiscal years ending June 30, 1913, and June 30, 1914, in millions of dollars:

	1913	1914
ORDINARY RECEIPTS		
Customs	318	292
Internal revenue:		
Ordinary	309	309
Corporation excise	35	11
Corporation income tax	...	32
Individual income tax	...	28
Miscellaneous	61	62
Total	724	734
ORDINARY EXPENDITURES		
Civil and miscellaneous	171	169
War	160	176
Navy	133	140
Indians	20	20
Pensions	175	173
Postal deficiency	1	...
Interest on public debt	23	23
Total	683	701
Less repayment of expended balances	1	1
Excess of ordinary receipts over ordinary expenditures	41	34
Balance in general fund at close of year	165	146
PANAMA CANAL STATEMENT		
Receipts (sale of bonds)	...	...
Expenditures	42	39
Total expended to June 30, 1914.	$353,052,924	
From General Fund	214,452,055	
From Panama Canal bonds	138,600,869	

Public Debt.—The following is a statement of the public debt of the United States as of June 30, 1914:

Interest bearing debt:	
2s, Consols of 1930	$646,250,150
3s, Loan of 1908–1918	63,945,460
4s, Loan of 1925	118,489,900
2s, Panama Canal Loan, 1906	54,631,980
2s, Panama Canal Loan, 1908	30,000,000
3s, Panama Canal Loan, 1911	50,000,000
2½s, Postal savings bonds, 1911–1912	3,506,000
2½s, Postal savings bonds, 1912	1,129,820
Debt bearing no interest:	
United States notes (greenbacks)	$346,681,016
National Bank notes (redemption account)	15,142,888
Old demand notes	53,152
Fractional currency	6,852,472
Debt on which interest has ceased:	
Funded loans of 1891	4,000
Loan of 1904	13,050
Funded loan of 1907	594,900
Refunding certificates	13,300
Old debt	903,660
Certificates and notes issued on deposits of coin and silver bullion:	
Gold certificates	$1,080,974,869
Silver certificates	490,850,000
Treasury notes of 1890	2,439,000
Total interest bearing debt	$967,953,310
Total debt on which interest has ceased	1,552,560
Total debt bearing no interest	368,729,539
Total interest and non-interest bearing debt, June 30, 1914	$1,338,235,400
Certificates and Treasury notes.	1,574,263,869
Gross debt	$2,912,499,269
Cash in treasury:	
Currency trust funds	$1,574,263,869
Gold reserve fund	150,000,000
Net balance in General Fund	145,845,502
National bank notes	15,142,889
Total cash in Treasury	$1,885,242,260
Net debt, June 30, 1914	$1,027,257,009

The Bureau of the Census published during the year a report on *National and State Indebtedness and Funds and Investments, 1870-1913*, which forms a part of the decennial report on *Wealth, Debt and Taxation.* So far as the Federal Government is concerned, the data presented were al-

ready available. The tables, however, show in convenient form the rapid per capita decrease of our national debt. In 1870 it was equal to $79.44 for every inhabitant; by 1907 it had fallen to $10.05, and has increased but slightly since. In 1913 it was $10.59.

The Income Tax.—The yield of the income tax has fallen far short of the Treasury's estimate of $45,000,000 for the first year. It should not be forgotten, however, that the $28,000,000 collected represents only ten months of 1913, and some allowance must also be made for the fact that collections for the first year are likely to be sub-normal. As the provisions of the law become better understood and administrative methods are improved, the amount collected will be increased.

Less than $13,000,000, and therefore considerably less than half, of the revenue produced by the income tax on individuals, was derived from the "normal" tax of one per cent. on incomes up to $20,000. The balance, or about 15½ millions, came from the "additional tax" levied on the larger incomes. The figures for each class of incomes created by the income tax law are as follows:

Normal tax at 1 per cent	$12,728,038
Additional tax on net incomes of	
$20,000 to $50,000 at 1 per cent.	$2,934,754
50,000 to 75,000 at 2 per cent.	1,645,639
75,000 to 100,000 at 3 per cent.	1,323,023
100,000 to 250,000 at 4 per cent.	3,835,948
250,000 to 500,000 at 5 per cent.	2,334,583
Exceeding 500,000 at 6 per cent.	3,437,850

The number of individuals taxed, according to the classification adopted by the Treasury Department, was as follows:

Classification	Returns
$2,500 to $3,333.33	79,426
3,333.33 to 5,000	114,484
5,000 to 10,000	101,718
10,000 to 15,000	26,818
15,000 to 20,000	11,977
20,000 to 25,000	6,817
25,000 to 30,000	4,164
30,000 to 40,000	4,553
40,000 to 50,000	2,427
50,000 to 75,000	2,618
75,000 to 100,000	998
100,000 to 150,000	785
150,000 to 200,000	311
200,000 to 250,000	145
250,000 to 300,000	94
300,000 to 400,000	84
400,000 to 500,000	44
500,000 to 1,000,000	91
1,000,000 and over	44
Total	357,598

The original estimate of the number of persons subject to the income tax was 425,000.

The following table, taken from the preliminary report of the Commissioner of Internal Revenue, shows the income tax collections by states:

Alabama	$62,102.89
Alaska	2,427.83
Arizona	28,672.14
Arkansas	42,035.48
California	880,374.16
Colorado	111,877.30
Connecticut	409,405.53
Delaware	94,904.93
District of Columbia	289,275.10
Florida	108,800.43
Georgia	115,874.11
Hawaii	34,822.62
Idaho	12,314.44
Illinois	2,076,171.11
Indiana	180,770.77
Iowa	141,136.62
Kansas	49,960.11
Kentucky	98,244.62
Louisiana	148,261.18
Maine	75,772.35
Maryland	448,409.06
Massachusetts	1,505,885.72
Michigan	1,018,220.20
Minnesota	372,527.41
Mississippi	40,502.46
Missouri	657,058.31
Montana	40,667.78
Nebraska	76,857.75
Nevada	13,490.37
New Hampshire	48,732.88
New Jersey	716,756.20
New Mexico	10,389.33
New York	12,522,797.34
North Carolina	46,566.55
North Dakota	20,645.38
Ohio	904,508.22
Oklahoma	93,082.15
Oregon	90,054.36
Pennsylvania	3,176,095.38
Rhode Island	324,221.74
South Carolina	25,811.11
South Dakota	12,351.62
Tennessee	98,274.54
Texas	360,965.21
Utah	27,375.04
Vermont	89,356.77
Virginia	103,449.30
Washington	122,474.56
West Virginia	94,627.97
Wisconsin	220,642.58
Wyoming	7,533.49
Total	$28,253,534.80

War Revenue Act.—In reviewing the finances of the Federal Government for 1914 the principal event to be noted is the passage of a War Revenue Act or, in the language of its title, an act "to increase the internal revenue, and for other purposes." Early in August it became evident that the effect of the European War on the foreign commerce of the United States would be such as to necessitate emergency financial legislation. About the middle of August Treasury

experts estimated that the revenues from customs duties would fall off from $60,000,000 to $100,000,000 for the fiscal year. That this amount would have to be made up by increasing the internal revenues was at once suggested on every hand, and plans were freely discussed for increasing existing taxes and creating a great variety of new ones.

On Sept. 4 President Wilson delivered to Congress a brief message urging legislation to make good the loss of revenue by taxation, instead of by borrowing or using up the Treasury surplus. He also recommended that any measures adopted should be such as to insure an immediate and constant revenue. In spite of this the Ways and Means Committee drew up a tentative plan to increase the rate of the normal income tax to 1½ per cent. and make incomes of $2,000 taxable. The idea was promptly abandoned when President Wilson objected to it on the ground that it could produce no revenue until after July 1, 1915. Various proposals were discussed without reaching a definite programme until on Sept. 15 the Democratic majority of the Committee in caucus agreed upon the features of a bill to be introduced. The bill (H. R. 18891) which was finally introduced by Chairman Underwood on Sept. 21 proposed to revive most of the Spanish War taxes and impose many others in addition.

The bill at once became a party measure, the Republicans opposing it on several grounds, chiefly with a view to providing campaign material for the approaching Congressional elections. First of all it was opposed as a "war tax in time of peace," which could not be thought of. It was claimed also that the decline in revenue was due not to the war but to the Democratic tariff; that instead of resorting to new taxation the Treasury balance of over $100,000,000 on deposit in banks could be used; and, finally, that needed funds could be obtained by strict economy and retrenchments.

The first objection was purely sentimental and could have but little weight. The second was a natural position for the Republicans to take, but the facts clearly disproved it. The customs revenue collected in 1913 amounted to $318,891,395, while for 1914 the figure was $292,128,527, a falling off of only $26,762,868. But this amount was more than made up by the $28,253,535 accruing in ten months from the tax on individual incomes. An additional revenue of $10,844,729 was derived also from the income tax on corporations. As a matter of fact, therefore, the Underwood Tariff Act was producing fully as much revenue as could have been expected, especially since business conditions were generally unfavorable. Duties collected in June and July were well up to the average, no serious diminution occurring until August, following the outbreak of the war. Matters would have been much worse and the need for an emergency revenue law much greater had it not been for the income tax and lessened dependence on customs revenue.

The Treasury balance on Sept. 21 was about $119,000,000, of which $75,000,000 was deposited in national banks to assist in moving crops and to meet the daily needs of the Treasury. Of the remainder a large amount was in subsidiary coin and bullion and therefore not available for meeting current obligations. In his message the President had spoken against the idea of relying on this Treasury surplus to tide over the period of reduced import duties. The majority report (H. Rept. 1163, 63d Cong., 2d sess.) of the Ways and Means Committee also emphasized the fact that demoralized financial conditions had already put a great strain on banking facilities which made it unwise to attempt to withdraw government funds from the banks. To this the Republican minority replied, however, that it would be equally disastrous to withdraw money from the people by taxation for which they were unprepared.

On Sept. 25 the bill passed the House by a vote of 234 to 135, 11 Democrats voting against it with all the Republicans except one. On the 26th it was sent to the Senate, but was not reported on by the Finance Committee until Oct. 8 (S. Rept. 813, 63d Cong., 2d sess.). On the 6th the Senate Democrats held a caucus on the bill to hold their vote together and curtail debate. Many amend-

ments to the House bill were proposed by the Senate Committee, the principal ones providing for an elimination of the tax on life and casualty insurance companies, a reduction of the gasoline tax from two cents to one cent a gallon, the introduction of a tax of 50 cents per horsepower on automobile sales, and an increase of the special tax on tobacco manufacturers and dealers. The tax on gasoline and automobiles, however, was eliminated in the caucus. In the Senate various features of the bill gave rise to prolonged debate, so that it was not until Oct. 22 that it reached a form acceptable to both houses of Congress and received the approval of the President. The main provisions of the law may be grouped by the several dates on which they were to become effective.

(1) The liquor taxes took effect immediately. The tax on beer, ale, porter, and similar fermented liquors is increased from $1.00 to $1.50 per barrel of 31 gal. On still wines, domestic and imported, the tax is one cent a pint; on sparkling wines and artificially carbonated wines, 20 cents a quart; on liqueurs, cordials or similar compounds, 24 cents a gallon; and on wine spirits, 55 cents a gallon.

(2) Special taxes, or license taxes, on bankers, brokers, amusements, and tobacco dealers and manufacturers became effective on Nov. 1, as follows: bankers, $1.00 for each $1,000 of capital, including surplus and undivided profits; brokers, dealing in stocks, bonds, exchange bullion, coined money, bank notes and other securities, $30; pawnbrokers, $50; commercial brokers, $20; commission merchants, $20; custom house brokers, $10. Theaters, museums and concert halls must pay $25 to $100, according to capacity; circuses, $100; all other public exhibitions or shows, $10; and bowling alleys and billiard rooms, $5 for each alley or table. Dealers in leaf tobacco are taxed $6 to $24, according to the amount of sales, dealers selling less than 1,000 lb. a year being exempt; dealers in manufactured tobacco, whose annual sales exceed $200, $4.80 for each store or shop. Tobacco manufacturers, $6 to $2,496, depending on the total annual sales. On the manufacturers of cigars the tax is also graduated according to annual sales and ranges from $3 to $2,496; manufacturers of cigarettes pay likewise from $12 to $2,496, according to total annual sales.

(3) Stamp taxes on promissory notes, legal and other instruments, became effective on Dec. 1. On each $100 of face value, or fraction thereof, of bonds, debentures, or certificates of indebtedness issued by any company or private corporation, five cents; also on all sales of shares of stock, two cents for each $100 of face value or fraction thereof; on promissory notes and for each renewal, two cents for $100 or fractional part; and on each sale of merchandise on an exchange or board of trade either for present or future delivery, one cent for each $100 of value or fractional part thereof.

Insurance policies of all kinds, including surety bonds, pay one-half cent for each dollar or fractional part paid in premiums. On indemnity bonds the tax is a uniform one of 50 cents. Deeds and conveyances pay 50 cents, if the value of the property exceeds $100 and does not exceed $500, and for each additional $500, 50 cents. Entry of goods at a customhouse, 25 cents to $1.00; entry for withdrawal from customs bonded warehouses, 50 cents. Certificates of profit, two cents for each $100 of value; certificates of damage, 25 cents; and any other certificate required by law, 10 cents.

Railroads and other carriers are required to issue bills of lading or manifests to cover all shipments and to attach to each a one-cent stamp. Newspapers are exempt from this tax but pay one cent on each shipment. Telegraph and telephone companies are required to pay a tax of one cent on all messages for which they collect 15 cents or more. Tickets for passage to foreign ports pay $1 to $5 depending on their cost, although those costing $10 or less are exempt. Seats in parlor cars and berths in sleeping cars are required to pay one cent each.

Power of attorney or proxy for voting at elections of corporations, excepting religious, charitable, literary or cemetery societies, is taxed 10 cents, while power of attorney to convey real estate and for other pur-

poses, has to pay 25 cents. The protest of bills, notes, etc., pays 25 cents.

STATE AND LOCAL TAXATION

The legislatures of 13 states met in regular sessions during 1914, and several others held special sessions, but only in a few of them were tax laws of importance enacted.

Maryland.—Three acts were passed in Maryland relating to exemption. By Ch. 43 (approved March 12) state and local bonds are exempted from both state and local taxes. Another act (Ch. 467, approved April 13) grants an exemption of $500 for household furniture not used in business or for profit. A third law (Ch. 528, approved April 13) gives Baltimore and the counties of the state power to exempt manufacturing machinery.

The method of taxing corporations has been radically changed. Shares in all business corporations are now exempt, the corporations themselves being taxed on their real and personal property just as if they were natural persons. After 1914 every business corporation is to pay annually a graduated franchise tax, the proceeds to be divided equally between the state and the counties or cities, in proportion to the number of shares held by residents in them (Ch. 324, approved April 16). Another act (Ch. 797, approved April 13) imposes a uniform tax of one per cent. on all bank shares in the state instead of the variable local rates levied where stockholders reside. By a new law (Ch. 411, approved April 10) the special state tax on securities cannot exceed 45 cents per $100. The local tax is 30 cents and by the new act the state tax may not exceed 15 cents, so that the maximum is now 45 cents. The total rate has been 61 cents per $100.

The office of state tax commissioner has been abolished and to take its place a state Tax Commission is created (Chap. 841, approved April 16). The Commission is a bipartisan one with three members appointed for a six-year term at a salary of $5,000, the chairman drawing $1,000 extra. The new body is responsible for the administration of tax laws, with power to establish a uniform system of accounts. A continuing method of assessment is to be maintained and all property valuations are to be reviewed at least once every five years. The law also creates for each county and for Baltimore a supervisor of assessments. He is appointed by the state Tax Commission at a salary of $1,000 to $2,400, depending on the assessed value of property in his district.

Massachusetts.—Tax legislation of some importance was also enacted in Massachusetts. An excise tax of two cents on each $100 of face value or fraction thereof is imposed (Ch. 770, approved July 7) on all sales of stock of corporations, to be paid by means of adhesive stamps. By another act (Ch. 761, approved July 7) bonds secured by mortgage on tangible property, whether situated in Massachusetts or elsewhere, are exempted from all other taxation by the payment of an annual registration fee of 30 cents on each $100 par value of the bond.

In 1912 (*A. Y. B.*, 1912, p. 184) a constitutional amendment was adopted permitting special methods for taxing wild or forest land. The appointment of a commission to study the subject was noted in the last issue of the YEAR BOOK (p. 356). In 1914 a rather complicated act was passed providing for the classification and taxation of forests. Application having been made as prescribed by the law and approved by the tax commissioner, woodland or land suitable for forest planting in tracts of three acres or more may be classified as (1) land with trees of merchantable value, to be known as "woodlot," and (2) land without merchantable trees, to be known as "plantation." Classified land is to be taxed at its fair cash value exclusive of trees and buildings. Woodlot, or land with merchantable timber, is also subject to a forest commutation tax, which is to be found in each year from 1914 to 1919, inclusive, by deducting from the total taxes which would have been paid on the woodlots in each town at the rates levied in 1913, the total forest-land tax assessed. The remainder is the forest commutation tax for towns and it, in turn, is apportioned to each woodlot in proportion to stumpage value of the trees. After 1919 each classified woodlot is to con-

tinue to pay the tax levied in that year. Land classified after 1919 will pay only the tax levied on the land alone at the last assessment before classification. Classified land is also liable to a forest-products tax. Owners of woodlots must report annually the stumpage value of all wood cut and any other income derived from such classified land. A tax of one per cent. is levied on this amount until 1919. Thereafter the rate increases one per cent. every five years until it reaches six per cent. Wood with a value of less than $25 for the personal use of the owner or his tenant is exempt from the forest-products tax. Provision is made in the law for deductions on account of losses by fire. Lands may be withdrawn from classification by paying the forest land tax and the forest commutation tax for the current and all previous years, as well as the forest-products tax on the stumpage value of trees then standing.

New Jersey.—New sources of revenue having become necessary on account of the effect of the "seven sisters" anti-trust acts (*A. Y. B.*, 1913, p. 344), a direct inheritance-tax act was passed in New Jersey (Chs. 57, 58 and 59, approved March 26). In form the new law is an amendment to the collateral inheritance-tax law of 1909. An important feature of the act is that it applies to shares owned by non-residents in New Jersey corporations. "Charitable, benevolent and religious institutions organized under New Jersey laws" are exempt. An exemption of $5,000 is granted also to husband, wife, children, adopted children, and their issue. For heirs of this class the rates run from one per cent. on $5,000 up to three per cent. on $250,000 and over. On other direct heirs the rates are higher, reaching four per cent. on $250,000 or more. By another New Jersey law the method of taxing banks and trust companies is changed (Ch. 90, approved March 31). Trust companies have hitherto been taxed as business corporations, while bank shares have been taxable at the residence of the holder, after deducting the value of all exempt securities, which meant that practically banks were taxed on their realty only. Now banks and trust companies are to pay 0.75 per cent. on their capital, surplus and undivided profits, less the assessed value of their real estate.

New Jersey has also repealed the maximum tax-rate law, applying to counties and local districts (Ch. 9, approved March 10). Hereafter no deduction for debts is to be allowed from the tax on tangible personal property (Ch. 191, approved April 15). The only offset permitted by the 1914 law is for debts owed by residents of New Jersey, and these must be deducted from intangible personal property.

New York.—Several important tax matters were before the New York legislature, but few changes in the laws were actually effected. Unsuccessful attempts were made to reduce the tax rate on buildings, to amend or repeal the secured-debts law, and to amend the inheritance-tax law so as to tax once more intangible property owned by non-residents (*A. Y. B.*, 1911, p. 294). The only change of importance affecting the entire state was contained in an act (Ch. 277) designed to simplify and make more flexible the form of roll prescribed for local assessors.

Virginia.—A special joint committee of ten members (seven of them from the legislature) was appointed to consider the whole system of taxation in Virginia and other states and to report not later than Nov. 1, outlining alternative schemes for remodeling the tax system of the state (Ch. 377, approved March 24). By an act approved Jan. 29 (Ch. 4) money in bank is taxed at a special rate of 20 cents on $100. One-half the revenue is to go to the state government and one-half to be used for the free primary schools of the state.

Constitutional Amendments.—Amendments removing the requirement that all property shall be taxed at the same rate, that is, permitting classification, were submitted to the voters in the following states (see *A. Y. B.*, 1913, p. 354): California, Kansas, Nebraska, North Carolina, North Dakota, Ohio and Oregon. The California amendment permitted local taxing districts to exempt any class of personal property or improvements. Five other tax amendments

were also before the voters of California. Two of these provided exemption for colleges and shipping. The other three subjected to taxation the property of counties and cities located outside of their boundaries, abolished poll taxes, and limited to taxpayers the privilege of voting on bond issues. The Ohio amendment proposed a restricted classification and was submitted by an initiative petition. In Oregon an amendment was also voted on exempting $1,500 worth of personal property and buildings. The results of the votes on these amendments are given on another page (see VI, *Amendments to State Constitutions*).

The Senate in Massachusetts proposed an amendment permitting classification of property. The House rejected the proposal, but passed a resolution, which the Senate adopted, amending the constitution so as to give the legislature power to levy proportional and undifferentiated income taxes. In Kentucky the Governor was enjoined from proclaiming the adoption of the classification amendment approved on Nov. 4, 1913, on the ground that it had not been advertised until 60 days before the election, although the constitution requires a period of 90 days between the last advertisement and the election. The legislature, therefore, passed the amendment again (Ch. 94) and it will be submitted a second time in 1915.

An amendment providing for the separate assessment of land and the classification of improvements and personal property was adopted by the Maryland legislature (Ch. 390) to be voted on in 1915. The Wisconsin amendment noted in the YEAR BOOK for 1913 (p. 354) has to be passed again by the 1915 legislature. (See also VI, *Amendments to State Constitutions.*)

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BANKING AND CURRENCY

E. E. AGGER

THE BANKING SYSTEM

Currency.—The total stock of money in the United States on Oct. 1, 1914, was, according to the estimate of the Treasury Department, $4,037,735,626. This implies a per capita circulation of $37.15, and indicates an enormous increase of $292,694,823 since Oct. 1, 1913.

The nation's gold coin (including the bullion in the Treasury) makes up $1,861,838,264 of the present circulation, as compared with $1,895,438,245 a year ago. This falling off is due to the heavy shipments which preceded and which accompanied the outbreak of the European War (see *infra*). More than half of the total stock of gold, namely $973,777,869, was held in the Treasury, being represented in circulation by gold certificates.

Standard silver dollars represented a coin total on the date mentioned of $565,878,478, an increase during the year of $212,215. Most of this silver, namely $493,367,000, is hoarded in the Treasury as a guarantee for silver certificates, which circulate as substitutes for the silver coins themselves. That the paper certificates are progressively supplanting the coins in circulation is shown by the fact that on Oct. 1, 1913, there was in general circulation (including a small amount held in the Treasury as assets of the Government) $75,501,263, while on the same date in 1914 the figure stood at $72,511,478. The subsidiary silver increased during the year from $175,617,585 to $183,059,092. The Treasury notes of 1890, originally issued for the purchase of silver under the Sherman Silver-Purchase Act of that year, show a shrinkage through retirement from $2,607,000 to $2,394,000.

The United States notes, popularly known as "greenbacks," remain of course at the fixed figure of $346,681,016. The national bank notes, however, show an increase from $759,030,694 on Oct. 1, 1913, to $1,077,884,776. This increase is explained by the fact that owing to the exigency created by the European War, advantage was taken by the banks of the provisions of the Aldrich-Vreeland Act of May 30, 1908, with its subsequent amendments, to issue so-called "emergency currency." Over $300,000,000 of such currency had been authorized by the Treasury Department by Oct. 1.

The National Banking System.—The number of national banks op-

erating on Sept. 12, 1914, was 7,538. This represents a net increase of 24 since Oct. 31, 1913. The net increase during the previous year was 86, which was itself 11 fewer than during the year before. The falling off was undoubtedly due to the comparative slackness of business. In order to keep continuous the statistical tables the sectional distribution of the banks is shown for approximately corresponding dates in 1913 and 1914 in the following table:

	Oct., 31, 1913	Sept., 12, 1914	Change
New England	450	440	— 10
Eastern states	1,660	1,657	— 3
Southern states	1,523	1,545	+ 22
Middle states	2,069	2,074	+ 5
Western states	1,286	1,290	+ 4
Pacific states	521	527	+ 6
Island possessions	5	5	.....
	7,514	7,538	+ 24

In view of the establishment of the Federal reserve system, however, with the division of the country into 12 reserve districts, it is desirable to show the numerical distribution of the banks as between the several reserve districts. The following table shows this distribution at the beginning of the new system:

District	National Banks, Sept. 12, 1914
No. 1	440
No. 2	479
No. 3	758
No. 4	764
No. 5	488
No. 6	380
No. 7	964
No. 8	458
No. 9	704
No. 10	832
No. 11	744
No. 12	519
Total	7,530[1]

[1] Not including eight banks which had not joined the Federal reserve system.

The development of the important items in the resources and liabilities of the national banks, as indicated in the reports to the Comptroller of the Currency, is shown in the following table:

	Aug. 9, 1913	Sept, 12, 1914	Per Cent. of Change
RESOURCES:			
Loans and discounts	$ 6,168,555,525.30	$ 6,400,767,386.01	+ 3.7
United States bonds	790,023,283.00	791,421,126.22	+ .17
Other bonds and securities	1,095,906,346.97	1,014,095,251.79[1]	— 7.5
Due from approved reserve agents	769,213,605.45	673,958,901.01	—12.4
Cash	899,169,374.49	—907,298,934.26	+ .9
Miscellaneous	1,153,184,308.37	1,695,977,895.39	+47.
Total	$10,876,552,343.58	$11,483,529,494.68	+ 5.5
LIABILITIES:			
Capital, surplus, and undivided profits	$2,041,228,571,83	$2,071,814,271.24	+ 1.5
National bank notes outstanding	724,459,849.00	918,270,315.50	+26.7
Due to banks and bankers	2,108,550,411.12	1,969,728,626.54	— 6.6
Individual deposits	5,761,338,731.77	6,139,081,279.77	+ 6.5
United States deposits	77,094,619.47	97,338,771.19	+26.
Miscellaneous	153,880,160.39	318,286,230.44	+106.8
Total	$10,876,552,343.58	$11,483,529,494.68	+ 5.5

[1] Not including $392,663,116.72 in miscellaneous securities to secure circulation.

The office of Comptroller of the Currency, vacant since April, 1913, was filled in January by the appointment of John Skelton Williams, Assistant Secretary of the Treasury, who took the oath of office on Feb. 2 (see V, *The National Administration*). On April 25 Atlanta, and on April 27 Richmond, were designated as reserve cities. In May Comptroller Williams issued a new form of reporting blank, requiring additional information regarding security holdings, which calls for a full statement of national bonds borrowed and loaned and also of the kinds of bonds and stocks held as investments. In May also the Treasury Department adopted a new ruling charging a bank sending in bank notes for redemption the express charges involved in sending to the issuing banks such part of the notes as are fit for circulation.

In June the Secretary of the Treasury announced that the Government stood ready to aid the movement of

crops by the deposit of government funds to an amount upward of $200,000,000. To determine whether a necessity existed for such deposits, the Secretary sent a circular letter to the national banks asking for information. As a result of his inquiry, he decided to distribute approximately $34,000,000 among the national banks. He announced that he would accept as security, United States bonds at par; state, municipal, railroad and other bonds at 75 per cent. of their market value; and commercial paper at 75 per cent. of its face value. Commercial paper was accepted at 65 per cent. of its face value in 1913, and of the $37,386,000 deposited in that year for crop-moving purposes, the greater portion was secured by commercial paper. The last installment of the 1913 deposits was repaid to the Government on April 1, 1914. The Government received in interest from the banks $216,000. In November the Comptroller issued new regulations concerning the reserves. No deposits may hereafter be exempt from reserve requirements as was the case with government deposits before.

Postal Savings Banks.—From the organization of the postal-savings system in 1910 down to May 1, 1913, the central office was supervised directly by the Postmaster-General. On the latter date the business of the system was transferred to the bureau of the Third Assistant Postmaster-General, and a special division, known as the Division of Postal Savings, was created to administer the system. Important changes were made in the regulations and the system was put on a more efficient basis. The growth of the system is shown in the following table:

	August, 1911[1]	August, 1912[2]	June, 1913[1]	August, 1914[2]
Offices	1,277	12,119	12,158	10,361
Deposits	$1,175,618	$3,536,960	$3,388,147	$4,200,000[3]
Withdrawals	184,819	2,563,517	2,626,339	5,508,060
Balance to credit of depositors	2,172,854	22,745,428	33,818,870	48,000,000[3]

[1] Figures based on tables given in the report of the Third Assistant Postmaster General for 1913.

[2] Figures based on a circular letter sent out to the press by the Post-Office Department.

[3] Figures given as approximate.

BANKING LEGISLATION

Federal Legislation.—The Federal Reserve Act, even before the inauguration of the system, has been amended in several particulars. One amendment approved on Aug. 4 makes more generally available the provisions of the Act authorizing the Secretary of the Treasury to suspend the limitations of the Aldrich-Vreeland Act under certain conditions. He can remove the restriction which makes the Act available only to banks having a bond-secured circulation of at least 40 per cent. of the capital. He may also remove the restriction limiting the total circulation of a bank to its unimpaired capital and surplus, except that no bank may issue in excess of 125 per cent. thereof. A tax of three per cent. per annum is provided for the notes in excess for the first three months, with a subsequent increase in the rate of one per cent. per annum for each additional month that the notes remain in circulation until the tax equals six per cent. per annum. The benefits of the Act may also be extended to qualified state banks and trust companies which are members of the Federal reserve system. A second amendment, approved on Aug. 15, permits state banks during the period of 36 months within which the Federal reserve system is being put into operation to continue holding reserves now held by them for other state banks, and to have such reserves counted as if they were held by national banks.

The Clayton Anti-Trust Act prohibits, after two years, any person from being at the same time a director or other officer or employee of more than one bank or trust company operating under the Federal law, where either has deposits, capital, surplus and undivided profits aggregating more than $5,000,000; and also prohibits a private banker or a director of a state bank or trust company having deposits, capital, surplus and undivided profits in excess of $5,000,000 from being a director in any bank operating under the laws of the

United States. Furthermore, in cities of more than 200,000 inhabitants no bank or trust company operating under the national law can have as a director, officer or employee any private banker or director, officer or employee of any other bank or trust company located in the same city. Mutual savings banks are not included under the law and permission is also given to directors, officers, etc., of a bank or trust company operating under the national law in any such city, to serve in one other bank or trust company where the entire capital stock of one is owned by the stockholders of the other. Specific provision is also made to allow a class A director of a Federal reserve bank to act as an officer or director or both in one member bank. The power to enforce these banking provisions is vested in the Federal Reserve Board.

State Legislation.—*Arkansas.*—The act creating the state Banking Department was upheld by the state Supreme Court in a decision handed down on July 6. The point involved was that the legislature has no constitutional right to create any permanent state department not specifically mentioned in the constitution.

Georgia.—The Georgia legislature passed a fraudulent check bill making it a misdemeanor for any person to draw a check against insufficient funds upon which he may obtain value, with the proviso, however, that if the drawer within 30 days deposits with the bank sufficient funds to meet the check with interest, no prosecution shall be undertaken.

Kentucky.—Chapter 16 of the *Session Laws* amended the state laws to make them conform to the requirements of the Federal Reserve Act. Chapter 34 provides for the appointment of an additional bank examiner; the powers of the state bank commissioner with respect to the control of the incorporation of banks have been broadened. Chapter 8 makes the drawing of a check under $20 a misdemeanor and over $20 a felony when the maker knows that there are no funds to his credit. Payment within 20 days after notice of dishonor, however, prevents prosecution. Chapter 45 provides that a willful and malicious statement injurious to the financial standing of any bank, savings bank, or trust company be punished as a misdemeanor. It provides a penalty of a fine from $200 to $1,000 or of incarceration in the county jail of from 20 to 100 days, or both.

Louisiana.—The Louisiana legislature passed an act to punish the giving of checks on banks where the drawer has not sufficient funds for credit, similar to the Georgia act.

Maryland.—Chapter 805 of the *Session Laws* embodies a thoroughgoing revision of the general public banking law. It provides for the incorporation of banks; for their regular supervision by a state bank commissioner and for their taking over by the commissioner with the written consent of the Governor and the Attorney-General in case of insolvency. The commissioner reports violations to the Governor, who may direct the Attorney-General to take action. No bank or trust company having a capital of $100,000 or more may carry for a longer period than 90 days bills payable in an amount greater than its paid-in capital. Capital and surplus constitute the limit for banks with smaller capitalization. The period may be extended by the bank commissioner, but not longer than 90 days. Trust companies are also included in the act, although companies organized before April 8, 1910, have any possible special privileges safeguarded to them. A bill approved on April 13 reduces the tax on bank stock to one per cent., about half of what it was before.

Massachusetts.—Chapter 537 of the *Session Laws* makes trust companies joining the Federal reserve system subject to the Federal Reserve Act; it also provides for the establishment of foreign branches by trust companies which have a capital of over $1,000,000, and in general gives to trust companies the powers with respect to acceptances in foreign trade, etc., given by the Federal Reserve Act to national banks. Chapter 567 provides a punishment of imprisonment of not more than three years or a fine not more than $5,000, or both, for any banker, etc., who while knowingly insolvent accepts deposits. Chapter 470 adds any business having the word "trust" in its name to the banking business subject to the examination

of the state commissioner. Another act approved in May prohibits trust companies of Massachusetts from holding more than 10 per cent. of the capital of another trust company.

Mississippi.—A bill known as the "Kyle bill" creating a state Banking Department was approved on March 9. The act provides for the establishment of a bank-deposit guarantee system which is to go into operation on May 1, 1915. Candidates for the position of bank examiner will be subject to election. The new commission must consist of an attorney to be named by the Attorney-General, a banker to be appointed by the Governor, and an expert accountant to be named by the Auditor. The Governor approved the bill, but objected to the election of bank examiners and the arbitrary power conferred upon them.

New Jersey.—Chapter 90 of the *Session Laws* provides a tax of three-fourths of one per cent. on the market value of bank stock plus surplus and undivided profits. This tax is in lieu of all other state and local taxes on such stock and on the banks' personal property. The tax is to be divided between the municipality and the county within which the bank is situated. In a decision handed down on Oct. 12 the state Supreme Court upheld the tax. Chapter 159 is a special enabling act to permit state bank and trust companies to join the Federal reserve system.

New York.—Under an emergency message from the Governor, the New York legislature passed a resolution on Jan. 27 extending the time given to the Van Tuyl commission to prepare and file its report. The report was filed in March and a bill known popularly as the "Van Tuyl bill" and constituting Chapter 369 of the *Session Laws*, embracing the recommendations of the Van Tuyl commission, was passed by the legislature on March 25 and was signed by the Governor on April 16. The bill as originally drafted comprised a complete codification and revision of the banking laws and covers over 400 pages. It revises the state-bank requirements to make them conform to the Federal Reserve Act. It requires savings banks to build up a surplus fund, restricting dividends until the surplus is 10 per cent. Reserve requirements are reduced to the percentages prescribed in the Federal Reserve Act. No corporation other than trust companies organized under state laws is permitted to do a trust business. This eliminates national banks which under Section 11 of the Federal Reserve Act might obtain permission from the Federal Reserve Board to do a trust business. Private bankers are brought under the supervision of the state Banking Department. This was the result of a special message sent by the Governor urging the regulation of private bankers, inspired by the failure of Henry Siegel & Co. in New York. On June 13 Justice Rudd of the Supreme Court at Albany upheld the constitutionality of the Van Tuyl bill in proceedings brought against it by two New York private bankers.

Chapter 112 makes it a misdemeanor for anyone knowingly to make a false statement derogatory to the financial condition of a private banker. Chapter 383 makes it a misdemeanor for any officer, etc., of any bank to receive deposits under $25, and a felony if the deposit is more than $25, when such officer, etc., knows that the bank is insolvent. Chapter 518 constitutes a comprehensive regulation of the salary-loan business.

Ohio.—In a special session of the legislature the state banking law was amended to permit state banks to adjust themselves to the provisions of the Federal reserve system.

Rhode Island.—The Uniform Bills of Lading Act was passed by the Rhode Island legislature.

South Carolina.—The South Carolina legislature on March 25 passed the Uniform Negotiable Instrument Act, now effective in 47 states.

Texas.—In a special message to the state legislature on Sept. 16, Governor Colquitt of Texas advocated the establishment of a state central bank. When the legislature failed to enact the required law the Governor called a special session for Sept. 26. The lower house, however, again refused to pass the bill.

Virginia.—An act was passed in Virginia to empower banks to become members of the Federal reserve system. There was also an act to permit

banks to do a trust business in addition to a general banking business.

THE FEDERAL RESERVE SYSTEM

Organization.—The organization of the Federal reserve system, the early steps of which are traced in some detail in another place (see I, *American History*), began with the hearings held by the Organization Committee in several cities, beginning at New York on Jan. 5 and ending at Cleveland on Feb. 17.

On Feb. 16, M. C. Elliott, secretary of the Organization Committee, issued a notification that by the 23d of the month all national banks must signify their intention with respect to joining the system. Ninety-seven per cent. of the national-bank capital had accepted by that date. On Feb. 19 a final warning was given. By Monday, Feb. 23, 7,465 out of a total of 7,493 national banks had signified their intention to join. They represented over 99 per cent. in numbers and 99¾ per cent. in capital. Of the 28 banks that had not come in, 18 had sent in notifications that they would not join and ten remained to be heard from. Some of the 18 had already arranged to go into liquidation or to consolidate with other banks, while of those not heard from some had just been organized. All these ten, however, joined the system before April 1. The total capital thus provided was $1,054,533,554, out of an aggregate capitalization of the banks subject to the Act of $1,057,093,554. The aggregate capital of the banks not accepting was $1,990,000, and of the banks not heard from, $570,000. The sectional distribution of the accepting banks was as follows: New England, 445; Eastern states, 1,655; Southern states, 1,518; Middle states, 2,059; Western states, 1,270; Pacific states, 518. On Feb. 24 the Organization Committee made public the regulations under which state banks and trust companies might come into the system.

The decision of the Committee with respect to the districts was announced on April 2. The reserve cities selected, the area and population of the reserve districts, and the guaranteed strength of the reserve banks on that date, were as follows:

District No.	Resident City	Area	Population	National Banks	State Banks	Capital Subscribed		Total Capital
						National Banks, 6 per cent.	State Banks	
1	Boston	66,405	6,557,841	446	0	$9,931,740	.....	$9,931,740
2	New York	49,170	9,113,279	478	1	20,621,606	$66,010	20,687,616
3	Philadelphia	39,865	8,110,217	800	1	12,980,412	12,601	12,993,013
4	Cleveland	183,995	7,961,022	724	2	11,528,835	93,000	11,621,835
5	Richmond	173,818	8,519,313	475	9	6,303,868	239,413	6,543,281
6	Atlanta	233,860	6,695,341	372	10	4,641,415	61,365	4,702,780
7	Chicago	176,940	12,630,383	984	15	12,664,100	487,825	13,151,925
8	St. Louis	146,474	6,726,611	434	11	4,843,079	1,366,244	6,219,323
9	Minneapolis	437,930	5,724,893	687	0	4,702,864	.....	4,702,864
10	Kansas City	509,649	6,306,850	835	3	5,583,955	10,961	5,594,916
11	Dallas	404,826	5,310,561	726	6	5,520,187	113,904	5,634,091
12	San Francisco	693,658	5,389,303	514	15	7,825,405	290,119	8,115,524
			89,045,616	7,475	73	107,147,470	2,741,432	109,898,902

On May 11 the Committee announced the names of the five institutions in each district which were to execute the certificates of incorporation of the 12 Federal reserve banks. Notices were also sent to all member banks that the names of candidates nominated for directors of classes A and B in the reserve banks must be forwarded to the Committee not later than June 22, so that the names of such candidates might be placed on the ballots to be sent out to the district reserve electors. The law required the directors to be elected by banks acting in three groups, each one to contain, as nearly as might be, one-third of the number of the banks in the district, the banks in each group having approximately the same capitalization.

Member Banks.—As virtually all the national banks have come into the system, most interest in this direction

attaches to the action of state banks. On June 27 only 50 state banks and trust companies had joined. In only 20 states are the Treasury officials sure of state banks being able to come in. These states are Vermont, New York, New Jersey, Delaware, Maryland, Virginia, West Virginia, Kentucky, Tennessee, Ohio, Indiana, Illinois, South Carolina, Alabama, Mississippi, Arkansas, Texas, Arizona, California, and Oregon. Kentucky and South Carolina, as already indicated (see *Banking Legislation, supra*), have passed enabling acts since the passage of the Federal Reserve Act. In New Mexico trust companies but not state banks will join. In the other states the banking laws do not give state banks a clear right to enter the system, many of them prohibiting state banks from owning stock in other corporations. While the state authorities are generally disposed to concede the right, legislation is necessary in many states to establish it unequivocally.

The Federal Reserve Board.—President Wilson's nominations for the five appointive members of the Federal Reserve Board were Paul M. Warburg of New York, W. P. G. Harding of Birmingham, Ala., A. C. Miller, formerly of Leland Stanford University, Thomas D. Jones of Chicago, and Charles S. Hamlin, Assistant Secretary of the Treasury, the two latter chosen in place of H. A. Wheeler of Chicago and Richard Olney of Boston who declined the appointment. The Senate Banking and Currency Committee reported favorably on Messrs. Hamlin, Harding and Miller, but action on the appointment of Messrs. Jones and Warburg was deferred. Mr. Warburg's banking connections and Mr. Jones' connection with the International Harvester Co. were subjected to an investigation by the Committee which led to the withdrawal of Mr. Jones' name on July 23. The outbreak of the European War made the completion of the membership of the Federal Reserve Board imperative. On Aug. 4, Frederick Delano of Chicago was nominated by the President, and Mr. Warburg withdrew his refusal to appear for examination by the Committee. Both were confirmed on Aug. 6. The five appointed members took the oath of office on Aug. 10. Mr. Hamlin was designated as Governor and Mr. Delano as Vice-Governor. The first formal session of the Board was held on Aug. 13. Sept. 14 H. Parker Willis was appointed secretary of the Board. (See also I, *American History.*)

The Board immediately occupied itself with the difficulties that the war engendered (see *infra*). On Aug. 29 a meeting with representatives of the clearing-house associations to discuss the foreign-exchange situation resulted in the appointment of a committee which subsequently brought in a report advocating the establishment of a gold pool. The Board approved the plan and through its leadership the pool was successfully formed. Its helpfulness was also shown in the conferences arranged in August to consider the cotton and grain export problems. On Oct. 10 the Board formally approved the principle of the plan of the St. Louis bankers for raising a $150,000,000 fund to help finance the cotton crop. On Oct. 15 the Board decided to call the first installment of subscriptions to the Federal reserve banks for payment on Nov. 2. The amount required under this call was one per cent. of the paid-up capital and surplus of the subscribing banks. It was decided also to open all the banks on Nov. 16.

A conference of the directors of all the banks was called for Oct. 20, in Washington. At this conference 37 of the directors voted to open the banks on Nov. 30, and 35 on Nov. 16. On Oct. 25 Secretary of the Treasury McAdoo made an announcement fixing Nov. 16 as the date for the opening of all the Federal reserve banks, despite the vote of the directors of the banks at the Washington conference. Mr. McAdoo stated that he was impelled to this decision "particularly because of the emergency conditions in the South and the confident belief that the prompt opening of the reserve banks will be very helpful to the cotton situation and to general business in all sections of the country." He announced that as soon as the reserve banks were in operation, he would transfer to them as large an amount of government funds as pos-

sible. Comptroller Williams gave out figures showing that the new law would tend to release $464,919,076 of reserves, the total reserve required under the new law being $995,792,269 against $1,460,711,345 called for under the old law.

On Nov. 2 the first assessment on the reserve banks was levied by the Board to pay its expenses. The rate was four-tenths of one per cent. on the capital of the reserve banks. The Board made public during the first week in November the by-laws adopted for the several reserve banks. Joseph A. Broderick of the New York State Banking Department was in November appointed Chief of the Division of Audits and Examination of the Federal reserve system. On Nov. 10 the Board sent out a circular suggesting the broad lines of discount policy recommended to the reserve banks. It fixed the rediscount rates differently for the several districts, keeping them all above 5 per cent. as a measure of precaution. On Nov. 20 the Board announced a readjustment of the discount rates at the reserve banks, the result of which was to bring the rates closer to unformity, but it indicated at the same time that no further change could be expected in the near future. On Nov. 21 the Board made public the first consolidated statement of the reserve system. It covered the operations of the banks for the first five days. The cash holdings equaled $240,723,000; the rediscounts aggregated $5,607,000, while the reserve deposits equaled $227,138,000. On Dec. 1, the Board authorized the Kansas City and the Chicago reserve banks to assume clearing functions.

The Federal Reserve Banks.—The execution of certificates of incorporation of the Federal reserve banks was promptly accomplished in each district. The full list of directors in classes A and B was announced late in August. Class C directors, appointed by the Reserve Board, were announced on Sept. 30 for the reserve banks of New York, Boston, Richmond, St. Louis, and Minneapolis, and early in October the Board announced the directorates of the other banks. On Oct. 5 the directors of the New York bank held a meeting and elected Benjamin Strong president. Pierre Jay was appointed Federal reserve agent and chairman of the board of the New York reserve bank. The governors of the other banks are as follows: Boston, Frederick H. Curtiss; Philadelphia, Richard L. Austin; Cleveland, E. R. Fancher; Richmond, William Ingle; Atlanta, Joseph A. McCord; Chicago, James R. McDougal; St. Louis, Rolla Wells; Minneapolis, John H. Rich; Kansas City, Charles M. Sawyer, state bank commissioner of Kansas; Dallas, E. O. Tennison; and San Francisco, John Perrin.

The reserve banks opened for business on Nov. 16, but owing to the speed with which they had to be organized they were permitted to exercise only a part of their legal functions. The date was hailed by Mr. Warburg as America's economic "fourth of July." Over $20,000,000 of Federal reserve notes were shipped to the reserve banks and the new notes appeared generously in circulation. The national banks paid in over $137,000,000 in gold on the first reserve payment and over $33,000,000 in other money.

BANKING AND THE WAR

Foreign Exchange.—The outbreak of the European War tested the very foundations of our credit system. Rumors of war before the outbreak of hostilities caused a considerable liquidation of American securities by foreign investors. The war itself naturally gave tremendous impetus to further liquidation. The closing of the London Stock Exchange threw the whole burden on the New York market, and from July 27 to the closing of the Exchange on the 30th, over 3,000,000 shares of stock were sold, for the most part on European account. This threw a tremendous strain on the foreign-exchange market. In the week July 20 to 27 demand sterling advanced 130 points to 4.8825 and by July 27 the market was merely nominal, rates depending upon personal negotiation. Exchange soared in an altogether unprecedented manner, cables advancing on Aug. 1 to $7 and demand sterling to $6. The sterling ex-

change situation was further complicated by the fact that the cable companies announced their inability to accept further messages in code. Another difficulty was the inability of shippers of grain and other produce to obtain adequate war insurance. The guarantee by the British Government of the cost of war-risk insurance removed this difficulty as far as England was concerned, but before buying bills growing out of grain shipments our bankers demanded that an actual deposit of funds be made on the other side and that cable advices of such deposits be sent to them. It was virtually impossible for a time to get remittances to stranded Americans on the other side, until finally the Government adopted the unusual step of sending over gold on an American warship, in charge of Mr. Breckinridge, Assistant Secretary of War, and officials of the War and Treasury Departments, who carried funds to all the European capitals.

Beginning with the first of August, foreign-exchange bankers held regular meetings to discuss ways of handling the situation, but there were reports of unwillingness on the part of some bankers thoroughly to coöperate with the others because of conflicting interests. Fixed rates, subject to adjustment, were agreed upon, but it was complained that they were not always adhered to. New York City had $12,000,000 in revenue warrants maturing on Oct. 1, and, furthermore, over $70,000,000 worth of obligations maturing within the next six months, much of the amount held in Europe. New York City's difficulties were finally taken care of through a $100,000,000 six per cent. loan subscribed for by all the New York banks, 127 banks in all participating in this loan. The difficulties of our travelers were largely taken care of in France through a special deposit by the French Government with Morgan, Harjes & Co., the Paris branch of J. P. Morgan & Co. The amount so deposited was about $16,000,000. The Bank of England authorized the Canadian Minister of Finance to receive deposits in gold in trust on its account. Finally through the leadership of the Federal Reserve Board, and with its approval, a representative committee of bankers organized a $100,000,000 gold pool. The necessary funds were subscribed by banks all over the country, and to the extent that it becomes necessary gold is shipped to Ottawa to cover maturing American obligations in Europe. The pool is managed by a committee of the New York Clearing House Association. The committee sells exchange directly to buyers on a basis of standardized rates. Toward the end of October, Sir George Paish and Basil B. Blacket, representing the British Government, came to the United States to confer with government officials and with bankers over the foreign-exchange situation. The belief was expressed that the shipment of commodities and supplies would ultimately take care of our indebtedness to England, estimated to amount to upward of $200,000,000.

Gold Movements.—The rapid rise in the exchange rate naturally stimulated the outward movement of gold. On July 27 $7,000,000 was engaged for export, and on July 28, $15,000,000. This with previous exportation brought the total for the year up to $108,425,000. The sum of $10,700,000 shipped on the steamship *Kronprinzessin Cecilie* alone was said to be the largest amount ever sent on one vessel. The feverish exportation of gold was stimulated by the rapid rise in the English bank rate, which finally, on Aug. 1, went to the unprecedented level of 10 per cent. By the end of July $122,700,000 in gold, not including shipments to Canada, had been sent out of the country since Jan. 1, of which $41,850,000 had gone out in one week. This loss of gold aroused such grave fears among the banking fraternity that a moral embargo was finally placed on further shipments. Engagements of gold for export were of course subsequently made, but these were either for the relief of stranded Americans or as a part of a generally accepted plan. The gold sent on the *Kronprinzessin Cecilie* was returned to New York when the ship took refuge at Bar Harbor. By the end of September the net loss of gold (deducting imports from exports) was for nine months, $117,714,832. The first shipment under

the gold pool arrangement was forwarded to Ottawa on Oct. 3.

Foreign Trade.—Ordinarily in the fall season, the export of our agricultural products supplies us with a favorable credit balance on the other side. The war disastrously checked exportation and destroyed this resource. It was impossible to get ships, and even if ships were obtainable shipments could not be financed because war-risk insurance could not be obtained, and banks would not accept bills without insurance. It was not until Aug. 14 that the outward movement of grain and other products could be resumed. In the meantime, also, shipping rates had been advanced. Thereafter improvement in the export situation was daily noted, but the larger part of the losses were irreparable. In the month of September the country's exports amounted to $156,188,790, as against $218,240,001 in the same month of 1913. Cotton alone showed a shrinkage of over $50,000,000. The net result of our foreign trade, balancing exports and imports, was an export balance of $16,984,523. In 1913 the September excess of exports was over $47,000,000. (See also XIII, *Economic Conditions.*)

The Banking Situation.—The heavy shipments of gold and the uneasiness which the war situation caused in this country put enormous pressure on the banks, the extent of which may be gauged by the fact that while the clearing-house banks in New York on July 27 had excess cash reserves of $26,173,750, on Aug. 15 they reported a deficit below legal requirements of $47,992,250. On Aug. 2 the New York Clearing House Association authorized the issue of clearing-house loan certificates and other banking centers quickly followed this lead. Conferences were held by bankers with the Federal Reserve Board and the Treasury officials. An issue of emergency currency was decided upon and Secretary McAdoo also announced that he would deposit at once in banks throughout the country $34,000,000 for crop-moving purposes. The New York Clearing House, through a regulation authorizing the acceptance of all "government money" in settlement of balances, made the emergency currency available for this purpose. The amendment that was made to the Aldrich-Vreeland Act permitting a greater issue of emergency currency has already been referred to (see *The Banking System, supra*). Furthermore, on Aug. 8 the Assistant Secretary of the Treasury announced that national banks not members of currency associations could obtain emergency currency by depositing with the Government bonds of the United States, of the several states and of the minor political subdivisions. Again, on Aug. 26, Secretary McAdoo announced that notes based on cotton, naval stores, and tobacco warehouse receipts would be taken as a basis for emergency currency to 75 per cent. of their face value. In all, over $300,000,000 in emergency currency was authorized. But from the middle of August, with minor interruptions, improvement was steady. By Oct. 23 the deficit of the New York banks was reduced to $934,150, and by Oct. 30 this deficit was converted into a surplus of $8,460,000.

The difficulty was naturally reflected also in the money rates. By Aug. 3 eight per cent. was bid for 30- to 90-day funds, but as a matter of fact, business in time funds was virtually at a standstill. Even after the improvement in the banks' position was noticeable, there were various charges that the bankers were demanding unduly high rates. The Secretary of the Treasury investigated these charges and while some of the banks were absolved from blame, the Secretary charged that there was still too much hoarding. On Sept. 25 he published a list of 247 national banks which maintained reserve above the required minimum, in some cases as high as 74 per cent. But by Nov. 1 the money market was almost back to normal, and the redemption of emergency currency began. On Nov. 30 the New York Clearing House Association announced that all their clearing house loan certificates had been retired. The Comptroller of the Currency announced a similar achievement for other clearing houses. Moreover, more than one third of the $381,530,000 of emergency currency was retired by Dec. 1. (See also XIII, *Economic Conditions.*)

INSURANCE

LIFE INSURANCE

WENDELL M. STRONG

General.—When the history of life insurance for the year 1914 can be written in the light of after events, it will be occupied almost entirely with the effect of the European War upon the business and with the problems raised or brought into new prominence by the war. Life insurance for the period of six or seven years ending with 1913, the last year for which statistics are available, had shown a steady and healthful growth. During the years 1908-13, as shown in the table below, the amount of new business written each year, the amount of insurance in force at the end of the year, the admitted assets, the surplus, and the payments to policyholders, all showed a steady and large increase from year to year, the total increase for the five years ranging from something over 30 per cent. to something over 60 per cent. The last of these years, 1913, was a year of financial depression and the strain showed in a lessened increase in new business. The first part of 1914 was somewhat similar to that of 1913, a period of business depression and of less rapid advance than had been averaged for the preceding five years, but still of advance. In the middle of the year came the great European War. While no statistics for the period of the war are yet available, it is possible to speak in general terms of its effects, the chief of which are increased difficulty of writing new business; increase of policy loans, surrenders, and lapses; possibly some increase in mortality; and depreciation in the value of all securities. Nevertheless, while it is probable that since the beginning of the war few companies have been able to write as much new business as in the corresponding period of the previous year, so that some decrease in new business written in the latter half of 1914 may be anticipated, this decrease, so far as it is possible to ascertain before statistics are available, is not very great and is less than might be expected.

Policy Loans and Surrenders for Cash.—The disadvantages of a large amount of policy loans have been described in the YEAR BOOKS for 1912 (p. 353) and 1913 (p. 368). A new element is introduced by the financial situation created by the European War, namely, the great demand on the companies for money, due to the rapid increase in policy loans and surrenders for cash. The rights given by policies to immediate loans or cash-surrender values might bring about, at a time of serious financial depression, such a demand that the companies would need to sacrifice securities to meet it. The securities which would have to be sold in a time of financial crisis would almost necessarily be the best securities, as those of a lower grade would be salable only at much greater sacrifice, sometimes not salable at all. In 1907 and 1908 a financial situation somewhat similar to the present occurred, and the demands upon the companies were large, but were met without sacrifice of securities. It would seem that the result of the present situation would be similar, and that, although the demands upon the companies will be great, they will not be so great that they cannot be met from the normal excess of income receipts above disbursements and from the receipts from maturing obligations. Nevertheless, there is a very considerable indirect loss to the companies, in that, because of the heavy demands on them for cash at such a time, they have little to invest when opportunities for investment at low prices are unparalleled. Thus the automatic working of the loan and surrender features is to take away from the companies the best opportunity for investment of their funds. It must be borne in mind that notwithstanding the experience of 1907, and what seems likely to be the experience in the present crisis, there is danger of a direct loss in the future in the unconditional right to immediate cash for loans or surrenders. Most companies are now being helped by being in a period where rapid growth of the present, or the recent past, results in an excess of the income receipts over the disburse-

ments. In the absence of such a condition, a demand like that of 1907 or the present could not be so easily met without some sacrifice.

Two changes have been proposed in regard to loans and surrenders, one of which directly aims to do away with the unsatisfactory condition which leaves the companies subject to the chance of such a strain in a time of crisis. This is, that the statutes now in force in a number of states requiring a provision in policies for loans upon application should be repealed and that by statutory requirements or action of the companies, the option should be reserved to the company in the policy contracts to defer the making of a loan or payment of a surrender value for some stated period after application. Such a reservation is now required by statute in two states, Minnesota and Connecticut, and the savings banks in some states have a similar option. At the last convention of insurance commissioners, the sentiment of the convention was expressed very strongly in favor of such a change. The second change proposed is that of reducing slightly the loan and surrender values, which in policies now issued are usually, after a few years, the full reserve, an amount usually considered excessive. If these values were reduced slightly, this small reduction would make up to the company the detriment suffered from surrender of the policy.

Effect of the War on Mortality in American Companies.—A few of the American companies have, during the past, written insurance in Europe. Much has been said about the effect of the war on the mortality in these companies, and the estimates of what the extra mortality would be have, in general, been very greatly exaggerated. One reason for a comparatively small excess of mortality due to the war is that the military age is, in general, lower than the age at which much insurance is carried. In this country, the average age of taking insurance is about 35, whereas in Europe it is two or three years higher, and, of course, the average age of the insured under insurance that has been in force some years is correspondingly higher than the average age at issue. As to military service, in England the first call for volunteers made only men under 35 eligible. This age limit has now (Nov. 15) been raised to 38, so that, under the voluntary enlistment in England, men under 38 will do the fighting while the majority of those insured are over 38. Where military service is compulsory, the situation is somewhat different, but even here the young bear the brunt of the fighting, while the older, if called upon at all, have the less hazardous service. It is not possible to foretell what the extra mortality from the war will be, but it is safe to say that it is not likely even to affect seriously in any company the surplus earnings of any year.

Amortization; Valuation of Securities.—The principal liability of insurance companies consists of having to hold the mathematical policy reserve required by law. The reserve, together with future premiums and interest earnings, forms the fund for the payment of policies as they fall due. Thus, in the ordinary sense, the reserve is not a liability at all, being a provision for the future which mathematical calculations show should be held, but on which there is no present call. The fact of legal requirements makes it necessary that a company have, at all times, assets of a value at least equal to the reserve, besides all other liabilities. This makes the question of how the value of these assets shall be determined an important one. A considerable proportion of the securities held by a company consists of railroad, municipal, and other bonds for which market values are quoted. While these market values make no real difference to the companies so long as the bonds themselves are good, yet, up to a few years ago, they were required to be used as the basis of the state reports. The crisis of 1907 showed how unfair such a method of valuing assets of life-insurance companies could be and how it might easily result under the state laws in prohibiting a company that did not carry a large surplus, but which was not only solvent but very prosperous, from issuing policies, or even in making it technically insolvent. The result was that a more satisfactory method of valuation was sought. It was recog-

STATISTICS OF UNITED STATES LIFE-INSURANCE COMPANIES
(*Insurance Year Book*)

Year	Number of Companies	End of Year		Premiums Received[2] (millions)	Total Income[2] (millions)	Total Payments to Policyholders[3] (millions)	Total Disbursements[3] (millions)	New Business[3] (millions)	Amount in Force at End of Year[3] (millions)
		Admitted Assets[2] (millions)	Surplus[1] (millions)						
1913	259	$4,658	$624	$715	$925	$468	$659	$2,533	$16,588
1912	248	4,407	621	672	893	447	628	2,405	15,559
1911	239	4,163	603	632	834	414	569	2,101	14,577
1910	211	3,874	557	593	779	387	540	1,846	13,233
1909	189	3,643	545	565	748	360	505	1,694	12,513
1908	161	3,399	484	545	704	336	468	1,481	11,873

[1] Includes amounts set apart for dividends to policyholders during following year. [2] Includes industrial business in 31 companies. [3] Does not include industrial business.

SURRENDERS, LAPSES, LOANS AND DIVIDENDS[1]
(*New York State Report*)

Year	Number of Companies	Amount in Force End of Year (millions)	Amount of Policies Surrendered (millions)	Amount of Policies Lapsed (millions)	Policy Loans End of Year (millions)	Dividends to Policyholders (millions)	Amount Paid for Surrendered Policies (millions)
1913	34	$14,304	$339	$383	$614	$96	$87
1912	34	13,527	276	366	548	88	84
1911	34	12,802	252	325	507	80	75
1910	33	11,669	236	277	465	72	72
1909	35	11,110	250	270	420	62	73
1908	35	10,623	250	314	390	52	71

[1] Life Companies reporting to State of New York only.

nized that in purchasing a bond the companies purchased the right to obtain certain payments, the amount of the interest, each half-year during the continuance of the bond and the face of the bond at maturity; that so long as these payments were secure, it made no difference what somebody else was willing to pay for the bond, since it was not bought to resell but to hold until maturity. The interest rate that the bond would bring, if purchased at a certain price, could easily be calculated. If a bond is purchased on the basis of a certain rate of interest, let us say five per cent., it seems fair to give it, at any time from then to maturity, such a value that it would return this same five per cent. on that value. This would mean that a bond would gradually be marked up or down from the purchase price toward par. This method, called the "amortization" method of valuing bonds, was adopted by statute in New York some years ago and has now been adopted, either by statute or by ruling of the insurance commissioners, in nearly all of the states. Furthermore, bonds are simply fractional parts of large mortgages and, consequently, there should be a similarity of treatment in valuation between the two; this is brought about by amortization, which is for bonds the equivalent of valuing mortgages at par. Amortization evidently avoids the dangers of serious injustice to the companies involved in the use of market values through the fluctuation of these values, and in a year like 1914, when market values are low, this advantage shows particularly.

Although the purchase of stocks has in general been prohibited by statute for a number of years, the companies still have enough stocks, which they have not been able to dispose of advantageously, for the method of valuing them to be of some importance. Stocks cannot be valued by any method similar to the amortization of bonds, since, unlike bonds, they are not an obligation to pay definite amounts, but are simply an interest

in certain property. Hence, it is necessary to value them on the basis of what people are willing to pay for such property, namely, on the basis of market value. Consequently, stocks present a problem when a severe depression in market values exists. For the year of 1914 the market value of June 30 (see XIII, *Economic Conditions*) has been agreed on by most of the commissioners as a fair value at which to report stock holdings. Since the amounts of stocks held by the companies are decreasing through sales, the standard of stock valuation is becoming year by year or less important.

Mutualization of Stock Companies.—Near the close of the year the Metropolitan Life, the largest of the companies doing both an ordinary and industrial business, announced its intention of changing from a stock to a mutual company. At the same time the Prudential, the second largest company doing both an ordinary and industrial business, during the year has been carrying towards completion its plan for changing from a stock to a mutual company. The change of these two companies would leave but one stock company among the eight largest life insurance companies.

State Insurance.—The results of the first year of active operation of the Wisconsin State Insurance Fund have been announced. They show 311 policyholders with $219,000 insurance in force, which would be but a fraction of one business day's new issues of any one of a large number of companies. Since the state does not stand back of the scheme financially, the fact that the number of policyholders is so small as to make probable wide fluctuations from the expected in the death rate is a serious weakness (*A. Y. B.*, 1912, p. 355; 1913, p. 369). Constitutional amendments were submitted to the voters in 1914 proposing to enable the state of Wisconsin to conduct different kinds of insurance with the state guarantee, which is lacking in the present State Insurance Fund, but were overwhelmingly defeated at the polls.

Industrial Insurance.—The statistics of industrial insurance for 1913 show a continuance of the normal growth which has lasted for many years in this class of insurance. The new business, amount in force, premiums received and losses paid all exceed by considerable amounts the corresponding items for 1912. So far as is known, the industrial-insurance business in 1914 has proceeded along the same lines as in 1913.

UNITED STATES INDUSTRIAL-INSURANCE COMPANIES

(*Insurance Year Book*)

Year	Number of Companies	New Business (millions)	Insurance in Force at End of Year		Premiums Received (millions)	Losses Paid (millions)
			Number of Policies (millions)	Amount (millions)		
1913	31	$850	29	$3,977	$218	$60
1912	31	840	26	3,707	199	53
1911	32	785	24	3,423	183	50
1910	22	749	23	3,179	171	47
1909	22	806	21	2,967	157	42
1908	20	606	19	2,668	144	39

Fraternal Insurance.—In fraternal insurance the most important event has been the abandonment by the largest of fraternal orders, the Modern Woodmen of America, of its attempt to establish adequate rates for its whole membership (*A. Y. B.*, 1912, p. 355). Several years ago higher rates were adopted, but this caused much dissatisfaction, especially among the older members, and was fought in the courts. The contest in the courts did not reach the highest court and a final decision, but the order lost about $318,000,000 insurance in force in 1912 and about $88,000,000 in 1913. Because of these developments the higher rates were suspend-

ed until the 1914 meeting of the Head Camp and at this were repealed. The Mobile bill (*A. Y. B.*, 1913, p. 372) contains a provision making higher rates for new business possible even in such a situation; it is that a fraternal order may adopt adequate rates with mathematical reserves and separate funds for a class of new members and such older members as may chose to transfer, while the other old members, as a distinct class, may go on in what is practically a separate order. The experience of the Modern Woodmen is not encouraging to those who are working to put fraternal orders on a sound basis for the future.

UNITED STATES FRATERNAL ORDERS

(*Insurance Year Book*)

Year	Number of Orders	Assessments (millions)	Total Income (millions)	Claims Paid (millions)	Total Disbursements (millions)	Assets End of Year (millions)	New Business (millions)	Number of Certificates in Force, End of Year (millions)	Amount in Force, End of Year (millions)
1913.....	509	$129	$144	$101	$121	$183	$1,065	8	$9,622
1912.....	397	123	132	95	114	163	1,023[1]	9[1]	9,472
1911.....	396	117	130	84	113	148	1,200	10	9,839
1910.....	497	114	128	92	110	129	1,331	8	9,562
1909.....	645	82	120	89	104	117	1,203	7	8,920
1908.....	547	104	115	84	98	104	1,120	7	8,438

[1] Decrease as compared with 1911 is partly due to incomplete figures from some orders.

PROPERTY AND CASUALTY INSURANCE

S. S. Huebner

Fire and Marine Insurance. — A larger number of fire and marine companies and Lloyds associations conducted operations in the United States in 1913 than in any of the five preceding years, the number being given as 645 by the *Insurance Year Book*, as compared with 621 in 1912 and the same number in 1911. The capitalization of these companies and associations totaled $105,195,000, an increase of 8.5 per cent. over 1912. Notwithstanding the increase in number of companies and capitalization, the total assets show a gain of only $17,440,000 during 1913, as compared with increases of over 30 millions in 1912, over 40 millions in 1911, and about 45 millions in 1910. Accordingly, net surplus, which had shown annual increases in 1910 and 1911 of about $20,000,000, and in 1912 of about $10,000,000, declined in 1913 to the extent of $1,701,000. This may be traced, in large measure, to the extremely low range of security values. The shrinkage in surplus, which otherwise might have proved temporary in so far as it was due to the above cause, and which would have been eliminated gradually as business conditions improved, may now continue for some time by reason of the European situation.

Net premiums and total income show increases during 1913 of $13,741,000 and $10,808,000 respectively, which are hardly commensurate with the gains of past years, considering the 23 additional companies included in the returns. As contrasted with the small increase in income, disbursements aggregated $382,097,000, which is an increase over 1912 of $22,759,000. This increase in outlay has been exceeded recently only by the year 1910, in which expenditures were greater than in the preceding year by over $24,000,000.

Of the total disbursements the amount paid for losses constituted about 54 per cent.; dividend payments, 9 per cent.; and expenses, 37 per cent. The respective ratios of these items to the total payments in 1912 were 53 per cent., 9 per cent. and 38 per cent. As may be judged from the above, losses showed a large increase in 1913 compared with former years. Whereas the usual increase is about $2,000,000 annually,

losses in 1913 exceeded those of 1912 by $14,724,000. The *Insurance Year Book* for 1914 furnishes the following data for companies and Lloyds associations doing a fire and marine business in the United States:

FIRE AND MARINE INSURANCE COMPANIES

Year	Number of Companies and Lloyds	Capital (thousands)	Total Assets Exclusive of Premium Notes (thousands)	Net Surplus (thousands)	Net Premiums (thousands)	Total Income (thousands)	Paid for Losses (thousands)	Paid for Dividends (thousands)	Paid for Expenses (thousands)	Total Disbursements (thousands)
1913	645	$105,195	$801,918	$291,192	$385,367	$421,598	$204,797	$34,266	$143,033	$382,097
1912	621	96,944	784,478	292,893	371,626	410,760	190,073	32,526	136,738	359,338
1911	621	97,703	754,344	283,201	358,623	392,966	184,917	33,291	129,474	347,683
1910	628	94,918	713,138	263,867	352,436	385,657	168,433	35,905	124,878	329,218
1909	636	87,638	668,194	243,414	333,862	365,264	156,369	31,217	116,964	304,552
1908	636	84,704	611,752	211,989	313,329	339,068	167,354	28,655	111,314	307,223

A summary of the report of the New York Insurance Department for 1913 shows that 250 companies were writing fire and marine insurance in New York State, with admitted assets of $699,351,805, an increase of $19,692,912 as compared with 1912. Total income increased $19,652,377 and disbursements $31,858,521, as compared with increases in 1912 of $27,477,920 and $23,944,413 respectively. While in 1912 premiums written increased by $26,500,000 and losses paid by about $7,000,000, in 1913 premiums show only the comparatively small increase of $16,102,368 and losses increased almost twice as fast as in the preceding year. Thus during the year 1913 the expenditures of the companies were unusually large, while income, both from premiums and other sources, failed to show the customary increase, and the net underwriting result of the year can hardly be termed more than fair.

In 1913 the net losses of companies doing business in the United States, according to the statistics of the National Board of Fire Underwriters, were 53.63 per cent. of net premiums written, while the ratio in 1912 was 53.24 per cent. Net losses of these companies in 1913 were 56.95 per cent. of the premiums earned and 55.84 per cent. in 1912. The past steady increase in commissions continued during 1913, such commissions aggregating 21.8 per cent. of net premiums written by companies operating in the United States, as compared with 21.23 per cent. in 1912 and 21.18 per cent. in 1909. The ratio of net expenses to net premiums written increased from 41.8 per cent. in 1912 to 43.21 per cent. in 1913. The average premium per $100 of insurance was $1.0592 in 1913 and $1.0761 in 1912.

The following table shows the combined risks and premiums of American and foreign companies operating in the United States for the past 13 years, as reported by the *Insurance Year Book:*

	Amount Covered (thousands)	Premiums Charged (thousands)	Rate per $100
1901	$23,165,057	$239,588	$1.0342
1902	24,318,694	267,176	1.0986
1903	25,973,182	292,346	1.1255
1904	27,799,253	314,812	1.1324
1905	30,096,204	342,215	1.1371
1906	32,278,524	365,135	1.1312
1907	35,375,319	402,874	1.1389
1908	37,155,734	417,671	1.1241
1909	39,951,263	442,415	1.1074
1910	43,123,801	464,616	1.0774
1911	46,276,992	491,072	1.0612
1912	48,840,386	514,594	1.0536
1913	52,856,280	544,836	1.0308

Fire Losses.—Fire losses during 1913 were approximately the same as those in 1912, namely $224,723,350, compared with $225,320,900. Losses to insurance companies are estimated by the *Insurance Year Book* at $196,000,000 in 1913, as against $194,000,000 in 1912. During the first eight months of 1914 fire losses averaged considerably higher than during the corresponding period of 1913, the losses totalling $162,323,700, as compared with $160,087,250 for the same period in 1913, an increase of 1.38 per cent. Corresponding losses for the first eight months of 1912, an unusually bad year, totaled $163,750,350. The fire loss per capita in the

United States is still enormous compared with European experience. Thus in 1913 this per capita loss ranged for the various American municipalities listed in the *Insurance Year Book* from $0.06 minimum to $40.91 maximum, as compared with $0.03 minimum to only $4.21 maximum for European cities.

According to the insurance press, August was the only month of this period of 1914 which, from a fire-underwriting standpoint, offered any hope of profit, this being largely due to the fact that a considerable number of the properties experiencing large fires during this month carried little or no insurance. In fact, the *United States Review* summarizes the situation from an underwriting point of view by stating that "the losses for 1914 so far have been so heavy that it is clear that fire underwriters generally will lose on the year." The month of June showed the unusually high loss of $29,348,000. This high figure is traceable to the conflagration in Salem, Mass., which is said to have destroyed 1,000 buildings, causing an estimated property loss of $20,000,000 and an insurance loss of about half that amount.

The following table, compiled by the *Journal of Commerce and Commercial Bulletin*, shows the fire losses by months for the past five years:

FIRE LOSSES

	1910	1911	1912	1913	1914
January	$15,175,400	$21,922,450	$35,653,450	$20,193,520	$23,204,700
February	15,489,350	16,415,000	28,601,650	22,084,600	21,744,200
March	18,465,550	31,569,800	16,650,850	17,511,000	25,512,750
April	18,091,800	17,670,550	16,349,400	16,738,250	17,700,800
May	18,823,200	21,422,000	21,013,950	17,225,850	15,507,800
June	13,183,600	20,691,950	16,103,450	24,942,700	29,348,000
July	26,847,900	25,301,150	15,219,100	20,660,900	17,539,800
August	21,570,550	12,662,650	14,158,800	21,180,700	11,765,650
September	11,700,000	11,333,250	13,779,300	17,919,300	14,383,050
October	37,188,300	13,945,000	13,651,650	14,932,750	14,004,700
November	16,407,000	18,680,600	16,172,300	15,207,600	21,372,750
December	21,528,000	22,722,850	17,967,000	16,126,450	23,507,150

Amendment of the Kentucky Rating Act.—The 1912 issue of the YEAR BOOK contained an extended description (p. 358) of the Kentucky rating law of that year, and it was stated that this legislation constituted the most noteworthy event of the year along the line of controlling fire-insurance rates by statute. In January, 1914, amendments to this Rating Act (the constitutionality of which is now being determined before the Supreme Court of the United States) were introduced, which had for their purpose (1) to authorize the State Insurance Board exclusively to fix maximum rates for all classes of risks, thus taking away from the companies' Kentucky Actuarial Bureau all share in the making of rates; and (2) to compel the Kentucky Actuarial Bureau and the companies to turn over to the State Insurance Board all their data relating to rates. The introduction of these amendments was followed by protests from various leading business associations of the state, and in February by the refusal of the companies to compromise by reducing rates and submitting data if the bill was dropped. The bill, amended so as to permit the Actuarial Bureau to make the rates but leaving them subject to percentage reductions by the State Board, became law by the Governor's signature on March 7. Thereupon the companies notified the Actuarial Bureau to cease operation and by March 10, 47 companies had ceased writing insurance in the state.

This action on the part of the companies caused much distress in business, especially since loans on commodities in bond and in warehouses had to be liquidated because of the loss of protection against fire. In view of this situation, and in the face of protests from business interests throughout the state, the state officials finally, during the second week of June, made an agreement containing the following important features: (1) The Business Men's Committee would enter suit to test the constitutionality of the law and the Insurance Board would not enforce the provisions of the Glenn-Greene amend-

ment until the question of constitutionality had been determined by the courts. (2) The Governor would appoint a committee, one member to be selected by the State Insurance Board, one member by the National Board of Fire Underwriters, and one member by the Committee of Business Men, to make an exhaustive study of state laws regulating rates with a view to formulating legislation on the subject. (3) The Actuarial Bureau would furnish memoranda of remediable defects to the State Insurance Board on risks rated hereafter, the board agreeing to refrain from calling on the companies or the bureau for copies of surveys or classification figures except to test the accuracy of the application of a schedule. (4) All companies which had withdrawn from the state would be permitted to resume business without the application of any penalty. (5) Rates would be reduced by the Actuarial Bureau wherever improvements were made. (6) The Business Men's Committee would guarantee the faithful execution of the agreement. Pursuant to this understanding, the companies resumed business in Kentucky, and the Circuit Court on June 12 held the Act unconstitutional and issued a temporary order restraining its enforcement.

Kansas Rating Act Declared Constitutional.—In the 1911 issue of the YEAR BOOK (p. 322) considerable space was devoted to a discussion of the various acts passed during 1911 with a view to having the state control fire rating, and attention was called to a number of court decisions, especially the decision of Judge John C. Pollock of the U. S. District Court at Topeka, declaring constitutional the Kansas rating law of 1909. This case was carried to the Supreme Court of the United States, and on April 20, 1914, by a vote of five to three, this court sustained the decision of the lower court in the case of the German Alliance Insurance Co. *v.* Lewis, and affirmed the right of the state, through its State Insurance Board, to fix the limits of the premium rates to be charged by fire-insurance companies doing business in the state. In general the decision upholds the right of the state to impose any conditions it may see fit upon companies doing business within its borders. The question involved in the case was: "Is the business of insurance so far affected with a public interest as to justify legislative regulation of its rates?" The majority opinion held that contracts of insurance "have greater public consequence than contracts between individuals to do or not to do a certain thing whose effect stops with the individuals," and therefore held that the state may regulate insurance contracts within its borders for the public interest. The dissenting opinion, on the contrary, regarded an insurance contract as a private one, and held that the principle laid down in the majority opinion, if carried to its logical conclusion, would mean "that every article sold and every service rendered can be regulated by legislative action." Mere size of the business, the dissenting opinion insisted, does not affect insurance with a public interest.

Suits in Illinois.—The Superintendent of Insurance of Illinois filed a suit against 133 fire-insurance companies doing business in that state, as a result of his investigation of rates, charging that the companies are members of the Western Union and Western Insurance Bureau, the purpose of which is unlawfully to fix fire-insurance rates in Illinois and prevent competition in that line. The Superintendent also filed a suit seeking to restrain 12 companies from issuing so-called "underwriters' policies" in Illinois. This action had been anticipated by the companies by applying for an injunction restraining the Superintendent from interfering with their business.

Fire-Insurance Commissions. — The Western Union of Fire Underwriters, at a meeting in the third week of September, unanimously provided for a reduction in the rates of commission in Chicago, which action was indorsed by the Western Insurance Bureau on Sept. 22. This marks a reassertion of company control over commissions and expenses in certain previously "excepted cities," where commissions have not been restricted, except for limited periods, for nearly a third of a century.

Pennsylvania Insurance Investigation.—In pursuance of an Act of the legislature, the Governor of Pennsylvania appointed in January a commission to investigate the objects, methods and practices of boards of underwriters and rating bureaus; to report whether such organizations are wise, beneficial or necessary, and to recommend legislation. Hearings were begun by this commission on Jan. 27 and continued until July. In September the Commission began the preparation of its report, which it is expected to submit in January, 1915.

War-Risk Insurance.—At the beginning of the European crisis war-risk insurance was sold at the rate of 0.5 per cent.; later the cost rose to four per cent. and in some instances rates were quoted as high as 30 per cent. In fact, at times it was impossible to procure insurance on such risks. On Aug. 5 the British Government announced that it had agreed to guarantee the war risk on all existing contracts for grain shipments to Great Britain, thus relieving a situation which threatened to tie up 50,000,000 bushels of grain which was ready for export at American ports. As a result of the war Congress on Sept. 2 enacted a law which created a Federal Bureau of War-Risk Insurance with a fund of $5,000,000. This insurance fund is limited in its operations to a period of two years, and is designed to insure American vessels, freight and cargo whenever it is impossible to secure adequate war-risk insurance elsewhere on reasonable terms. Two types of policies were issued, the first covering vessels and the second the voyage but not the hull. The policies insure only vessels flying the American flag. Blockaded ports and contraband are not covered, and an extra premium may be charged for extra-hazardous ports. (See also I, *American History.*)

Federal Regulation of Insurance.—Toward the close of 1913 Justice McKenna delivered an opinion in the case of the New York Life Insurance Co. *v.* Deer Lodge County, Montana, which upheld the Supreme Court's decision in Paul *v.* Virginia and subsequent cases to the effect that insurance is not interstate commerce and is therefore not subject to regulation by Congress. In January, 1914, a joint resolution was introduced in Congress proposing an amendment to the Constitution giving Congress "power to regulate the business or commerce of insurance throughout the United States and its territories and possessions," on which no action has been taken.

Liability and Compensation Insurance.—A new field for casualty companies is opened by the state compensation laws, of which there were 22 in effect in 1913, and results are presented separately for the liability and compensation lines during that year. Net premiums written on all liability business amounted to $49,276,079 in 1912, and $41,677,363 in 1913, a decline of $7,598,716 during the latter year. The aggregate losses paid, on the other hand, increased by $3,637,570, being $29,260,073 in 1913, as compared with $25,622,503 in 1912 and $16,548,724 in 1911. The ratio of losses to premiums written was 72 per cent. in 1913, 52 per cent. in 1912 and 57.7 per cent. in 1911 and 1910. The decline in premium income and consequent increase in the loss ratio during 1913 were principally due to the operation of compensation laws, which caused a rapid conversion of employers'-liability policies into workmen's-compensation insurance.

On workmen's-compensation policies written in 1913 premiums aggregated $14,733,596 and losses paid $4,561,043. The loss ratio was 31 per cent. Similar figures for 1911, at the close of which year only three states had completed a full year under their compensation laws, are not available. The above loss ratio, however, is not to be taken at its face value as an index of the prosperity of the companies. While the figures given represent all the premiums which will be received on 1913 business, they do not include all the losses which will accrue on 1913 policies. The ratio of losses at present known to premiums earned would probably approximate as much as 60 per cent., it has been estimated. It is also estimated that it is safe to assume that the ultimate loss ratio, even with the best inspection, prevention of accidents and selection, will equal 70 per cent.

The premiums, losses and loss ratio

for casualty companies during 1913 were as follows:

	Premiums Written (thousands)	Losses Paid (thousands)	Loss Ratio (per cent.)
Liability (all lines)	$41,677	$29,260	72
Workmen's compensation	14,733	4,561	31
Workmen's collective	851	551	65
Accident	34,522	15,581	45
Health	6,928	3,256	47
Plate glass	4,877	2,022	41
Burglary, theft and larceny	3,949	1,394	35
Steam boiler	2,759	371	13
Fly wheel	224	57	25
Sprinkler leakage	193	77	40

The following important events should be noted in the field of liability and compensation insurance.

(1.) Workmen's compensation acts were enacted in New York (December, 1913), Kentucky and Maryland. These laws are reviewed elsewhere (see XVI, *Labor Legislation*). The New York law virtually compels every employer to insure, either with stock companies, mutual liability companies, or the state fund, or to carry the risk himself, subject to a satisfactory guarantee of his financial ability to do so. The law provides for specific payments to injured employees for specified periods on the basis of 66⅔ per cent. of the average weekly wages. The act applies only to the so-called hazardous employments, arranged in 42 groups, and affecting, it is said, about 90 per cent. of the wage-earning classes of the state. A second law enables employers to form mutual insurance companies for their indemnification, and a third authorizes the state Superintendent of Insurance to supervise rates of premium to be charged by corporate insurance companies writing workmen's compensation risks.

The Kentucky act creates a state compensation fund. Employees may contract to accept compensation in lieu of any action at law and such contract will be presumed where the employer has selected to pay into the compensation fund if the employee continues to work for the employer thereafter. The employee may serve notice, however, that he does not accept the act, in which case the fellow-servant doctrine, the ordinary risks of the business or the failure to notify the employer of defects shall constitute a sufficient defense for the employer. Definite compensation is named for various injuries.

The Maryland act creates an Industrial Commission and provides three methods of insurance, (1) through private companies, (2) through a state fund, and (3) through mutual companies. The law corresponds very closely to the law of Michigan.

(2.) The Insurance Department of New York on June 9 determined the basis of adequate minimum rates for insurers of employers against liability for compensation under the workmen's compensation law, in accordance with which the adequacy of rates to be filed by insurance corporations and associations shall be judged for approval. The minimum rates were fixed on the basis of a loss ratio of 66⅔ per cent. and an expense ratio of 33⅓ per cent.

(3.) In May the Appellate Division of the Supreme Court of New York declared unconstitutional the law forbidding the settlement of suits arising out of personal injuries without the written consent and knowledge of the plaintiff's attorney, who may have a lien for services.

(4.) The New York Court of Appeals decided in March that if a company which has insured an employer against loss for damages from injury to his employees refuses to settle the case upon a recommendation from the employer that this be done, the company is responsible to the employer for the amount the employee recovers, even though it exceeds the face of the policy. The company must make good to the employer the loss it cost him by forcing a suit.

(5.) The District Court of Texas in March upheld the constitutionality of the Texas compensation statute. The court holds that the cost of carrying on an employment and the risks of the same should be shared by the employer and the employees, and that there is nothing in this act which contravenes the constitution of Texas or of the United States.

(6.) The compensation laws of three states, namely, New York, Ohio and Connecticut, went into effect on

Jan. 1. On the same date the state of California embarked on the insurance business through its compensation fund to insure employers against liability under the new Compensation, Insurance and Safety Act. Any profit of the state fund will be returned to policyholders, thus making it practically a mutual company administered by the state.

Accident and Health Insurance.—The following table compiled from the *Insurance Year Book* shows the premiums, losses and loss ratios on accident and health business for the past six years:

	Accident Insurance			Health Insurance		
	Premiums	Losses	Ratio of Losses to Premiums (per cent.)	Premiums	Losses	Ratio of Losses to Premiums (per cent.)
1913.....	$34,522,481	$15,581,234	45.0	$6,928,735	$3,256,227	47.0
1912.....	29,792,473	13,408,552	45.0	6,339,406	3,126,160	49.0
1911.....	27,351,626	11,837,347	43.2	7,101,666	3,314,301	46.6
1910.....	23,894,665	10,068,926	42.1	6,451,028	2,770,744	42.9
1909.....	21,446,506	8,248,182	38.4	5,714,579	2,173,386	38.0
1908.....	19,044,634	8,104,933	42.5	4,592,365	1,859,276	40.5

Judging from the foregoing table, accident insurance continued to show the same steady growth during 1913 that is reported for the preceding five years. The loss ratio remains at the same figure as in 1912, namely, 45 per cent. In health insurance, however, the loss ratio shows a decline of 2 per cent., although it should be borne in mind that this ratio had increased to 49 per cent. during 1912, as compared with 46.6 per cent. in 1911. The automobile hazard continues to engage the attention of underwriters because of the great number of fatal and non-fatal accidents resulting from motor-car operation.

Burglary Insurance.—Aside from the disagreements during the year with respect to rates to be charged, the important event in the field of casualty insurance was the revision of burglary-insurance rates on Dec. 20, 1913, by the Burglary Insurance Underwriters' Association. Rates in New York City were advanced $2.50 per $1,000 on the blanket form of policy, but were slightly reduced for the new co-insurance form. The existing low rates in New England were reaffirmed, while rates in Kansas City were slightly reduced. California rates remained practically the same. A reduction of 20 per cent. was made from the existing schedule for all cities of 100,000 inhabitants or less, and the rates of all other cities of over 100,000 inhabitants remained at the present scale, except those specially designated.

Fidelity and Surety Insurance.—As is indicated by the following table, compiled from the *Insurance Year Book*, the results in these branches of the insurance business during 1913 were not satisfactory:

	Premiums (thousands)	Losses (thousands)	Ratio of Losses to Premiums (per cent.)
1913.....	$20,027	$6,947	34.6
1912.....	19,243	5,192	27.0
1911.....	16,958	4,980	29.3
1910.....	15,473	2,814	18.1
1909.....	13,283	3,200	24.0
1908.....	12,530	3,826	30.5

In the case of fidelity insurance net premiums written were $7,392,392, losses paid $2,158,588, and loss ratio 29 per cent.; and in the case of the surety business, net premiums $12,634,682, losses paid $4,788,915, and loss ratio 37 per cent. Net income from fidelity business decreased in 1913 by nearly $2,000,000, and while surety premiums increased about $2,500,000, both lines of business show an increase of only about 5 per cent., whereas the loss ratio in the surety business increased from 26 per cent. to 37 per cent., and the combined loss ratio from 27 per cent. to 33 per cent. This condition is ascribed to two causes, (1) financial stringency, which always increases losses on surety contracts, and (2) the liberal interpretation of surety contracts by the courts.

XV. SOCIAL AND ECONOMIC PROBLEMS

CONSTRUCTIVE AND PREVENTIVE SOCIAL WORK[1]

WINTHROP D. LANE

Social Settlements.—The year 1914 marked the close of the first quarter-century of this, perhaps the youngest form of social work in America. Hull House, Chicago, and College Settlement, New York, celebrated twenty-fifth anniversaries of their beginnings. Many other settlements observed anniversaries ranging from the fifteenth into the twenties. The year saw increased influence of settlements in public affairs. One manifestation of this was the placing of a considerable number of settlement workers in important municipal offices where their settlement training became of value. In several cities new emphasis was given to the study of the neighborhood, to the structural organization of neighborhood life, and to the development of neighborhood loyalty. An increased tendency was noticeable also to develop the local bearings of semi-public and public services, especially school visiting, follow-up work after institutional care, and the prevention of juvenile delinquency. The National Federation of Social Settlements began a study of the adolescent boy, to correspond to its previous study of the adolescent girl. One effect of these studies is to lift the organization of recreation to a higher standard.

As an evidence of the increasing democracy of settlements, coöperation with two important factors in community progress, the school center and the neighborhood improvement society, was marked. With this has gone a more effective federation of settlement work itself, resulting in economy of effort, better standards of work and abler direction of specialties of service. There was an increased tendency also to entrust the leadership of clubs and other settlement organizations to persons taken from the neighborhood. At the Memphis meeting of the National Federation in June an unexpectedly large number of those present expressed the view that the settlement of the near future would have no plant at all, but would consist of a group of persons living in a home-like way near some school social center or similar public institution, devoting themselves to neighborhood leadership and helping to secure the wisest community use of all social facilities.

Social Centers.—In theory the social-center movement is a demand for frequent and organized meetings of all community groups for the purpose of engaging in recreational, social, intellectual or other forms of activity calculated to promote civic interest and kinship. In practice it usually becomes a demand for the fuller community use, especially in the evening, of the public-school plant. While it is certain that there has been a tremendous growth in the use of schools as social centers during 1914, the latest figures are for 1912-13; during that winter 126 cities reported that their boards of education furnished heat, light and janitor service for social-center usage of the schools. The biggest strides during 1914 were made perhaps by the Southwest and North-

[1] Additional topics in this field treated elsewhere in this volume include housing (see VII, *Municipal Government*); labor conditions (see XVI, *Labor and Labor Legislation*); care of immigrants (see *Immigration, infra*); prevention of defectiveness and vice (see *Social and Mental Hygiene*); child welfare and recreation (see articles under these titles in this department).

west. St. Louis, Omaha and Nashville were among the large cities to open their school plants to the community. Dallas and Houston, Tex., are putting into their new schools full social-center equipment.

The miscellaneous occasions on which schools are used increased notably during the year. Mothers' and all manner of women's clubs, housewives' leagues, taxpayers' associations, musical entertainments, farmers' institutes, art displays, political rallies and elections have invaded the public school, and even churches have held their Sunday schools within its doors. In Chicago 75 schools were used as voting places during the spring elections. All the schools erected in Seattle for four years have been provided with special basement voting rooms. At the beginning of the year 529 schools in the United States were commonly used as polling places.

Prior to 1914 the proportion of women over men entering school work constantly increased. In 1914 that increase stopped, there were not more men than women, but the proportion of women over men was checked. This has been interpreted by P. P. Claxton, U. S. Commissioner of Education, as a tribute to the fact that the school is constantly becoming more a public and less exclusively a children's institution.

Leaders of the social-center movement in Wisconsin are taking the position that voluntary leadership in individual communities is not sufficient to make the community use of school buildings "general, systematic, and continuous." A bill was drafted during the year directing school boards to employ paid "civic secretaries" to organize and direct the uses of the schoolhouse by adults. Osseo and Sauk City imposed this duty on their school principals in reëngaging them. Training in social-center development was introduced as a required course in the Milwaukee Normal School. The first National Conference on Teacher Training, held in Chicago in September, adopted resolutions favoring the use of public-school buildings as voting centers and urging "that orderly all-sided . . . discussion of public questions, which is the prerequisite of intelligent voting." (See also *Recreation, infra.*)

Social Surveys.—This is one of the newest forms of constructive social work; hence great confusion exists as to the meaning of the term. Many partial investigations of community life, such as a study of individual features of public-health service or of facilities for recreation, are miscalled social surveys. A social survey proper is a group of interrelated investigations dealing with all the larger social problems or more fundamental social relationships. Its purpose is to lead to the remedying of conditions.

The most important surveys of the year were those of Springfield, Ill., and Topeka, Kan., conducted by the Department of Surveys and Exhibits of the Russell Sage Foundation, at the invitation of the cities themselves. The Springfield survey was perhaps as near a typical, complete survey as has been held. The subjects covered in it were the schools, recreation, the charities, industrial conditions, municipal administration, public health, the correctional system, the care of mental defectives, insane and alcoholics, and housing. Reports on each of these topics have been issued and an exhibit showing the findings graphically was open to the public for three weeks in November. The total cost of the survey was about $15,000.

Cleveland and Baltimore have undertaken surveys of themselves to last five years. The Cleveland survey is the first work of the newly formed Cleveland Foundation. Although the first social survey, that of Pittsburgh, was conducted as recently as 1907-08, the number of communities, large and small, constantly undergoing partial or complete surveys to-day is legion. This heightened activity is evidence of the general departure, emphasized during the year, from the view that a survey is an impertinence and that its only result is to give the locality surveyed a "black eye," to the view that it is a scientific method of laying foundations for cleaner and healthier group life. Cities and towns are to-day welcoming surveys and are more and more entrusting the work of investigation to specialists from the outside.

County and rural surveys increased

notably during the year. Indiana, Tennessee, Maryland and Arkansas inaugurated state-wide rural surveys. While the social survey is so far a peculiarly American activity, an international aspect was given to it in 1914 by the carrying on of a social survey of Jerusalem. A committee of six Americans planned the investigations and chose the experts to make them. Regina, Saskatchewan, was surveyed also.

Remedial Loans.—The remedial loan movement attempts two things, to exterminate usury and to make available adequate loans for needy wage-earners. The two most severe blows to the practice of usury during the year were the decision of the Kansas Supreme Court awarding damages of almost $6,000 to the victim of a usurer, and the six months' imprisonment in New York of D. H. Tolman, "king of the loan sharks," a multi-millionaire with businesses in 80 cities. Four years ago 117 "loan-shark" offices in New York City were advertising in the daily papers; in 1914 the number was reduced to zero. A similar, though not quite equal, scurrying to cover is noticeable throughout the country.

Mississippi, Nebraska and New Jersey added themselves to the 16 states already having fairly satisfactory laws against usury. In November there were 38 remedial-loan societies in 35 cities, loaning nearly $25,000,000 annually; in January there were 35 societies in 30 cities. These societies loan small amounts of money on mortgages or personal property; a few accept also pledges, endorsed notes or salaries as security.

The most important step of the year in the provision of small loans for needy borrowers was the establishment of credit unions in New York State. A credit union is a coöperative association of persons brought together by some natural selection, such as the members of a lodge, a church, a trade union, or the like. It differs from a savings bank chiefly in its loans to members. These may be made on character as sole security. The first credit union in New York was organized in January under a law passed in 1913. In November this union had a membership of 200 and assets of $15,000. At that time there were two unions in existence, 20 others being under way. Massachusetts, which passed a law on the subject in 1909, has 40 such unions. Europe has 65,000, with an annual turnover of seven billions of dollars. (See also XVII, *Rural Credits.*)

The Industrial Finance Corporation, the formation of which was announced in New York in February with Andrew Carnegie, Julius Rosenwald, Vincent Astor and others on the board of directors, represented itself at that time as a union of business and philanthropy intending to compete with "loan sharks" in their own field. In June, when the men named retired with others from the board and E. R. L. Gould was superseded at its head by Clark Williams, the corporation took the frank position of being a purely business venture, which, however, might have important "sociological results." The corporation claimed that companies formed under it will loan money on character as sole security, but critics have questioned the workability of the plan.

Hospital Social Service.—This joining of hands by the medical and social-service professions "strives to bring to the institutionalized care of the sick such personal and individual attention to the patient's social condition that his recovery may be hastened and safeguarded." There are more than 150 social-service departments in hospitals and dispensaries in the United States at present. Among the important new ones established in 1914 are those at the Minneapolis City Hospital, the Milwaukee Children's Hospital, the Orange (N. J.) Memorial Hospital, and the Polyclinic Hospital in Philadelphia. A noteworthy development was the extension of hospital social service into municipal institutions. The appointment of a Director of Public Welfare in the municipal institutions of Chicago is the first organized effort to correlate the social functions of the various hospitals and municipal institutions caring for the city's dependents. The Social-Service Department of the Massachusetts General Hospital accumulated during the year over 400 records of individual patients showing the relations between their physical

condition and their occupations. These will serve as the basis of a more valuable study of occupational disease than has heretofore been possible.

Impetus was given during the year to both the development of technic and the promotion of specialized training for hospital social workers. The Boston School for Social Workers and the New York School of Philanthropy added courses for this purpose. The Boston school offers a variety of courses for both nurses and medical students. The course at the New York school is under the joint auspices of the School of Philanthropy and the Bellevue Hospital Training School for Nurses, three years of work entitling to both a nurse's and social worker's diploma. The Massachusetts General Hospital required senior medical students assigned for clinical medical work to attend weekly conferences with the chief of the Social Service Department of the hospital. At these conferences cases involving social treatment are discussed as the basis for giving students the social aspects of medicine.

Prevention of Tuberculosis.—Tuberculosis extends beyond the field of medicine and enters the social domain because of its frequent complication by poverty. It is one of the typical maladies of congestion. Aside from efforts to remove poverty and congestion, the anti-tuberculosis campaign has been so carefully thought out during the past decade that the task of each succeeding year is chiefly one of securing increased efficiency. Emphasis was placed throughout 1914 on the child as a factor in the prevention of tuberculosis. There was increased cooperation with agencies for the prevention of infant mortality, and more intensive education of children in the ways in which tuberculosis spreads. Special school textbooks and special lectures, accompanied by exhibits and stereopticon slides, were more widely used. In the last two years the belief has grown that open-air classes, of which there are more than 500 in the country to-day, do not go far enough. The result has been the building of preventoriums, places for children who have been exposed to the disease. Preventoriums were opened in 1914 in Wallingford, Conn., Westfield, Mass., Duluth, Galveston, Detroit and Boston, and two were started in Chicago and Ithaca, N. Y. The movement has been pushed back even further than to exposure in childhood, and efforts, still in an extremely experimental stage, are now being made to create immunity in early life. These efforts proceed on the hypothesis that the first eight years are the most susceptible and that most cases of tuberculosis begin at that time, though they may not become developed until much later. The problem is therefore to take care of children during these years in such a way that they will be immune for life. Experiments to this end are under way in Cincinnati, Cleveland and Pittsburgh, but it will probably be ten years before any positive results can be shown.

The complication of tuberculosis by poverty and bad housing conditions has led to efforts in New York, Philadelphia, Boston, Buffalo, Chicago and Memphis to treat the disease in the home itself, with the family held intact, and with a view to social, economic and physical rehabilitation. The Memphis experiment was begun late in 1914 by the Associated Charities. It consists of a tuberculosis colony on the outskirts of the city, portable houses being furnished for families to live in. The three-year experiment of the New York Association for Improving the Condition of the Poor reached the end of its second year in 1914. This is a "home hospital" in which 64 families afflicted with both tuberculosis and poverty have been treated. Seventeen of these have been discharged as rehabilitated physically, eight others having been dismissed either for frequent intoxication or for persistent refusal to follow advice. Of the adult cases 46.6 per cent. have been apparently cured, 35.5 per cent. have had the disease arrested, and 17.7 per cent. have been improved. The average income of the 17 discharged families was increased from $6.37 to $12.41 a week. The cost of caring for the families has been less than the estimated cost of institutional care.

The campaign extended further into rural localities during the year. Superintendents of county hospitals in New York were given power to extend their work throughout their counties.

This enables them to reach many who would not come to the hospitals on their own initiative. The spread of the propaganda is indicated also by the fact that the sale of Red Cross Christmas seals was organized in every state except Nevada, including Hawaii. Last year it was organized in all but Florida, Idaho, and Nevada. At the close of 1913 Thomas A. Edison, in coöperation with the National Association for the Study and Prevention of Tuberculosis, produced a motion-picture film showing the disastrous effects of "fake" cures. Governor Glynn of New York appointed a commission of experts, including Dr. Theobald Smith and Dr. Herman M. Biggs, to study the relation of bovine tuberculosis to that of human beings.

CHILD WELFARE

LEWIS MERIAM

The Children's Bureau.—The event of the year most indicative of widespread popular interest in child welfare was the securing of an increased appropriation for the Federal Children's Bureau. Miss Julia C. Lathrop, Chief of the Bureau, recommended an appropriation of $164,640, an increase over the original appropriation for the Bureau, under which it had worked for two years, of $139,000. The Committee on Appropriations of the House of Representatives in its report recommended only $25,640, the amount required by the Act establishing the Bureau. The Committee made no hostile criticism of the work the Bureau had done, but based its action solely on the ground that according to the rules of the House a recommendation for an increased appropriation would be subject to a point of order, as new legislation in an appropriation bill. According to rumor, no sooner was the announcement of the Committee's action made by the newspapers than members of Congress began to receive letters of protest from all over the country. Many members who had been active in establishing the Bureau organized to get it the increased funds without which its work could not develop. An amendment to the bill as reported by the Committee, giving the Bureau all that it had asked, was carried in the House by a vote of 276 to 47. In the Senate the exact wording of the appropriation recommended by Miss Lathrop was substituted for the amendment passed by the House, and the appropriation in that form became law. The force behind the movement was an insistent popular demand.

Infant Health.—The Children's Bureau has particularly identified itself in the first years of its existence with the forces engaged in preventing infant mortality and improving the conditions surrounding infant life. The year 1914 has shown progress in the several branches of this work. Georgia and South Carolina have adopted laws during the year providing for the registration of births and deaths. The legislation of every state in the union now recognizes the importance of adequate vital statistics. The problem becomes from now on one of developing an efficient system for carrying out the purpose of the legislation. Reports show that success is being attained through the system provided in the so-called "model law" drafted by a joint committee of interested societies and agencies working in coöperation with the U. S. Bureau of the Census.

Special studies of the social factors responsible for infant mortality, involving a visit to each home in which a birth was registered in a specified year, are being conducted by the Children's Bureau in certain of the smaller industrial communities. At the present time these studies are necessarily restricted to communities having reasonably complete birth registration. The report of conditions in Johnstown, Pa., has been issued and reports on Manchester, N. H., Saginaw, Mich., and Brockton, Mass., are in the course of preparation. A close connection between family income and infant mortality is indicated by conditions in Johnstown. The baby born to a poor family has the smaller chance for life and health.

Johnstown during the summer, through its Associated Charities, conducted a baby-saving campaign which shows encouraging results. Reports

in general tend to show increasing interest in baby-saving in the smaller cities. This is fortunate, as in some cases conditions in such cities are among the worst in the country. Atlanta, Ga., roused by a child-welfare exhibit, has established a permanent Child Welfare Clinic, supported by a committee of one hundred citizens. Grand Rapids, Mich., through the activities of the *Grand Rapids Press*, subscribed in eight days $650 for a free clinic for infant feeding. Peoria, Ill., has conducted an unusually successful child-welfare exhibit including a child-health conference similar to the one held at the Knoxville Conservation Exposition. The tendency is toward health conferences rather than health contests as agencies in promoting intelligent interest in child care.

The "baby-saving week" is a new device to spread the gospel that at least half our present infant mortality is preventable. All the agents of publicity were enlisted for the week in New York, Chicago, and Cleveland. Boston had the annual meeting of the American Association for the Study and Prevention of Infant Mortality in November and made the most of it as a means of popular education.

The importance of prenatal care, the care of the prospective mother, is receiving more adequate emphasis and an increasing number of cities are reporting prenatal work. The Children's Bureau pamphlet on "Prenatal Care" continues in great demand, and the second pamphlet in the "Care of Children Series," entitled "Infant Care," published the latter part of the year, is being distributed in large numbers. These pamphlets are distributed free on application to the Chief of the Children's Bureau.

Dependent Children.—In the field of the care of dependent children the discussion of the pros and cons of the so-called mothers' pension laws continues. The laws thus far passed on the subject by the several states have been compiled by the Children's Bureau in a report which may be secured on application. A bill presented to the New York legislature, accompanied by a favorable report of the state Commission on Relief for Widowed Mothers failed of passage. At about the same time a private report on conditions in New York City, prepared by a special committee of which Dr. Edward T. Devine was a member, found that the legislation was not needed for the city. On the basis of this latter report, the Rockefeller Foundation has made to the New York Association for Improving the Condition of the Poor a grant of $20,000 a year for ten years to be used in providing pensions for dependent widows with families. A significant feature of this grant is that the coöperation of relatives, churches, and other agencies which frequently help in such cases must be secured.

Significant movements toward the correlation of efforts of agencies dealing with dependent children are taking place. Philadelphia through its Children's Bureau has arranged for thorough coöperation of its 75 institutions and agencies, which together care for more than 10,000 children. The tendency will be toward placement in families rather than in institutions and toward a more thorough investigation of each case before the child is definitely taken by the child-helping agencies. A tri-state conference was held in Boston on the subject of child-helping in New England. The New England Home for Little Wanderers will work in close coöperation with the child-helping agencies of Maine, New Hampshire and Vermont. Vermont has no child-placing agency. Maine has a children's committee and New Hampshire has organized a Children's Aid and Protective Society.

The U. S. Bureau of the Census issued in the summer of 1914 its report on the inmates of benevolent institutions (see *Charity, infra*). This report includes for the first time statistics of the child-helping organizations. The Bureau of the Census has also prepared a digest of the charity laws of the several states. Copies of these publications may be secured from the Director of the Census, Washington, D. C.

Juvenile Courts.—Perhaps the most significant movement in 1914 in the development of the juvenile-court idea was the establishment in Cincinnati of a single court for the whole family. It combines with the former work of the juvenile court all divorce

jurisdiction and most of the failure-to-provide and non-support cases. Uncontested divorce cases are to be investigated by the probation officers. The new court is made a branch of the Common Pleas Court and has an elected judge. This development of the juvenile-court idea has been advocated by such an authority as Bernard Flexner, who recommends that the emphasis be shifted from the child-in-court to the family-in-court, that the courts have both equitable and criminal jurisdiction, and that when some act brings a child into court, the court's jurisdiction shall extend to all family relations which affect the child. The further recommendation is made by some persons actively connected with work for delinquent boys that the jurisdiction of the court be extended to include the so-called juvenile adult.

Cleveland is making an interesting experiment with a junior juvenile court. Statistics of the Cleveland court showed that almost one-fifth of all its cases came from a single district, the one in which Hiram House Settlement is located. The judge of the Juvenile Court appointed 14 Hiram House boys, from 10 to 15 years of age, probation officers of the Junior Juvenile Court and three attorneys to act as judges of the court. The probation officers, who are thoroughly familiar with the neighborhood, act practically as policemen. The object is to detect the first minor offenses and to bring the boys committing them at once within the influence of the persons connected with the settlement. Back of the more or less informal Junior Juvenile Court stands the legal Juvenile Court. The first reports regarding the experiment are favorable.

The St. Louis Juvenile Court in January appointed two women assistant judges to hear all cases involving girls. The two assistant judges sit together in hearing cases and only when they do not agree does the judge review the case. The juvenile courts of Chicago and Denver already had women to hear girl cases, but St. Louis adopted the idea not as the result of their example, but because in an especially difficult case the judge found the women probation officers easily got truthful answers from the girls, whereas he could get nothing. The girls explained that they could not tell certain things to a man.

The Missouri juvenile-court law applying to all counties except the six largest was held unconstitutional by the Missouri Supreme Court in May. This law vested in the probate courts exclusive jurisdiction in all cases of neglected and delinquent children and provided for chancery or equity proceedings in hearing the cases. The court held the law unconstitutional on two grounds. It conflicted with a provision of the constitution requiring uniformity of probate jurisdiction in the several counties, and although dealing with children who commit crimes, it failed to follow the precise rules for criminal procedure set forth in the constitution in that it did not provide for the filing of information by prosecuting attorneys, for the returning of indictments by the grand jury, and for the holding of jury trials. The decision of the court was unanimous. In an *obiter dictum* the court intimated that it would sustain the law applying in the six largest counties. Friends of the juvenile-court idea regretted that the court felt obliged to regard juvenile-court proceedings involving delinquent children as criminal actions, but it is believed that an effective law can be drawn to meet the objections of the court and at the same time establish effective juvenile courts.

The U. S. Attorney-General has appointed a committee to report upon the laws relating to children in the District of Columbia. This committee includes Bernard Flexner (chairman), Walter Clephane, William J. Kirby, William H. Baldwin, and Miss Julia C. Lathrop.

Child Labor.—In the campaign for the prohibition of child labor the most important advance has been the unanimously favorable report by the Committee on Labor of the House of Representatives of the Palmer Child Labor bill to prohibit the interstate shipment of articles in the manufacture of which child labor has been employed. Child-labor laws were enacted or amended during the year in the states of New York, Kentucky,

Georgia, Maryland and Arkansas, details of which are given elsewhere in this volume (see XVI, *Labor Legislation*). The Federal Children's Bureau has compiled the child-labor laws of the several states and is making studies of the methods of issuing work certificates followed in certain states believed to have especially efficient systems.

RECREATION

ROWLAND HAYNES

General Survey.—The most fundamental feature of recreation history during the year has been the steady growth of the movement for playgrounds and recreation centers. This, however, does not have the news value even for an annual record which is to be found in the novel features and extensions of ideas previously suggested. Some of the most important items for the year have been the considerable development of the use of reserved streets for play purposes, the introduction of a bill for a Federal board of licenses for moving pictures, and important litigation over state censorship boards, an attempt to adjust recreation administration to the commission and commission-manager plans of city government, the appointment of a Superintendent of National Parks, and several important pageants, especially those at St. Louis and Cape Cod.

Legislation.—Since few of the legislatures were in session most of the legislation affecting the administration of recreation during the year has been in city charters or ordinances. In Detroit by popular referendum the charter was amended, creating a Recreation Commission with power to supervise recreation activities in school and park property, and to censor commercial recreation. In St. Louis a city charter was adopted providing for a commissioner of public parks and recreation heading one of the eight departments under the director of public welfare, who in turn is one of the five members of the Board of Public Service appointed by the mayor. Sioux City acted favorably on the referendum giving the school board a special tax for recreation and playground activities, making it the first city in Iowa to take advantage of the new state law permitting such action. In Dayton a Board of Public Recreation was created by ordinance. This city has the city-manager plan and this new board has no executive functions but acts as an advisory body to secure the development of a comprehensive recreation system for the city. This is significant in view of the growth of the commission and the commission-manager forms of city administration throughout the country, the essence of which is that the administration of all departments shall be concentrated in the hands of a few persons. This results in recreation work, a new problem, being put in the hands of a commissioner chosen without special training therefor and compelled to give the major part of his attention to other lines of work. The Dayton experiment indicates an attempt to retain the centralized form of administration while giving influence to a planning and advisory body which shall specialize on the development of a comprehensive recreation system.

Wider Use of the School Plant.—In Washington the schoolhouses have been opened by law during the year for "educational purposes, civic meetings for free discussion, social centers, centers of recreation, playgrounds and branch libraries." In St. Louis an ordinance was passed providing that no fee shall be charged by the school board for the use of schoolrooms for civic, recreational or educational purposes. A fee is still permitted when schoolrooms or auditoriums are used for "amusement, entertainment, social recreation," meaning by the last term dancing.

In June and July conferences were held at Madison, Wis., on civic secretaryship as public service. The conference drafted a law to be submitted to the Wisconsin legislature in 1915 permitting the payment of school principals or other persons who act as secretaries for social centers. This law is to be in addition to and distinct from the present Wisconsin law permitting school boards to conduct

recreation activities on a special tax imposed therefor.

An interesting development affecting the wider use of school and other public facilities appeared at the meeting of the National Federation of Settlements at Memphis in May. Social settlements have always had a large part in leading recreation activities and their example and influence have been prominent in developing the American playground and recreation movement. In fact, the English social settlement and the German kindergarten may be called the two roots from which the American playground and recreation center development has grown. A large proportion of settlement workers at the annual meeting of 1914 seemed to look forward to the time when social settlements would have no separate facilities of their own other than residence quarters, to a time when settlement workers should find an even larger part of their task in securing the proper use of public facilities in their neighborhoods. These facilities on the side of recreation are school buildings, parks and streets. (See also *Constructive and Preventive Social Work, supra.*)

Street Play.—The fact that it would cost millions of dollars in crowded cities to provide areas used exclusively for playgrounds and adequate to handle the children needing play space has been gradually forcing itself upon public attention. The recognition of this fact has led to the development of various temporary expedients, among them the reservation of certain streets for play during certain hours. Several cities have for years reserved certain streets for coasting. "Play zones," certain blocks of streets reserved for play, came into notice as an experiment two or three years ago. During the summer of 1914 the plan was more extensively tried in New York City. Nineteen places in streets were set apart by order of the Police Commissioner for play between three and six-thirty p. m. That the need is pressing for such expedients is shown by a study of the lower west side of New York. In a survey made during the year 24,000 children were found with less than 16,000 sq. ft. of playground, or less than enough to stand upon. In Chicago injuries to 143 children under 16 years of age on streets have been reported in one month.

Motion Pictures.—In March a bill was introduced into Congress to create a Federal Motion Picture Commission, as a division of the Bureau of Education of the Department of the Interior. This bill proposed that all films intended for interstate commerce should be licensed and that only films so licensed should be eligible for copyright and interstate business. The bill was referred to the Committee on Education, which held hearings, but did not report out the measure before the adjournment of Congress.

State laws for motion-picture censorship have been passed in Ohio, Kansas, Illinois and Pennsylvania and are at present in litigation. The legislatures of New York, Massachusetts and Kentucky have considered but not passed similar laws. In Kansas the operation of the state censorship law has been held up by an injunction moved by the motion-picture attorneys, who contend, on the basis of a decision of the California Supreme Court, that restraint prior to publication, namely censorship, is not permissible, although punishment after publication is allowed in all states if pictures are indecent and immoral. The same point raised in Ohio was decided against the film companies and has been appealed to the U. S. Supreme Court, which has not yet reached the case. The Pennsylvania law is under attack as unconstitutional.

The National Board of Censorship has continued its method of sending out each week to two or three hundred local committees or representatives lists of cut-outs and of films rejected by the Board. This is a private body in New York City which judges films by voluntary unpaid committees, although the clerical expenses are met by three of the largest firms distributing motion-picture films. The report for 1913 issued early in 1914 showed that they inspected 7,000 reels during the year, covering 5,700 subjects. They found it necessary to reject less than one per cent. of the subjects submitted

and to call for cut-outs in about seven per cent. more. The National Board of Censorship has been especially influential in defining standards for judging films, several state and city boards having adopted their statement either verbatim or as a basis of amendment. In 1914 it has issued a new statement of its standards dealing with the presentation of love scenes, indecencies, crime, sex lapses, insanity and the use of drugs.

There are many conflicting estimates regarding the motion-picture business. The most reliable figures brought out in the Congressional hearings indicate that there are about 25 manufacturers in the country, 40 district exchanges or circulating libraries of films, and from 16,000 to 17,000 exhibiting houses. Estimates of daily attendance throughout the country vary from 3,000,000 to 8,000,000, with evidence favoring the larger number. The three big factory outlets, handling about 75 per cent. of the films issued, do an annual business of $15,000,000, while those in the business estimate that exhibitors take in at least $60,000,000 each year. The estimates of new subjects issued each week vary from 150 to 225, or from 7,500 to 11,700 a year. This makes the estimate of from 12,000 to 15,000 old subjects already in the country seem small and able to be accounted for only by the fact that the business has been increasing at about the rate of 60 per cent. a year. The export of American films has more than quadrupled during 1914, nine-tenths of those exported going to Great Britain or her colonies. With such an output the steady improvement in quality and complexity of the subjects is notable.

Dancing.—The tendency continues to regulate dance halls by city ordinance, licensing the halls, providing for supervision by the police or dance-hall inspectors, prohibiting the sale of liquor and regulating the hours and attendance of minors. Buffalo passed such an ordinance early in the year, which went into effect in August. In January Detroit and Minneapolis put into effect ordinances previously passed. The Wisconsin Supreme Court has upheld the Milwaukee ordinance passed two years ago.

The so-called modern dances have led to the introduction of special regulations. In Portland, Ore., the correct method of holding one's partner is specified in the ordinance. In Duluth certain dances are ruled out by name. In Kansas City the matter is handled by rules given the dance-hall inspectors but not incorporated in any ordinance. In that city roller-skating rinks have in 1914 been put under an ordinance similar to that governing dance halls.

Cabarets.—Cabaret performances, as entertainments in restaurants other than by orchestras or by singers in ordinary evening costume are known, have begun to receive attention. Only eight large cities permit such performances. In Philadelphia the license court has held that such dramatic performances are "alien to the purpose of a tavern." In Detroit an attempt has been made to exclude women singers, but the matter there is still before the courts. Public dancing by patrons of the restaurant is allowed in only four cities. Chicago has an ordinance prohibiting it and this seems to be in line with the general tendency throughout the country.

Municipal Dance Halls.—These are distinguished from ordinary commercial dance halls in that the revenue goes to the city, not merely a license fee, and that the city furnishes some form of chaperonage. They are distinguished from dances in school or park recreation centers by the fact that usually in the latter no admission is charged and more complete supervision is furnished. The first experiments were in Milwaukee and Denver, but these have not been continued. In Cincinnati the municipal dances are given in the Music Hall, equipment having been furnished by the city, refreshments by concession returning a percentage, and supervision by a voluntary organization. With lower prices than commercial halls it is self-supporting. The dancing pavilions in Cleveland parks continue to be popular and a financial success. During the winter municipal dances out of doors on asphalt paved streets were introduced in San Francisco. No charge was made, a municipal band furnished music, the

police maintained order and the streets so reserved were crowded to capacity.

City Planning and Recreation.—At the City Planning Congress held in Toronto early in the year, facts thus far gathered on the size and distribution of various types of play facilities were summarized. Two interesting experiments in combining proper housing and recreation facilities near home have appeared. The Billerica Garden Suburb, the first American adaptation of this form of the English plan of providing cheap homes for working men, has developed a 57-acre tract with two playgrounds of about two acres each, besides a large playfield on the outskirts of the tract (see also VII, *Municipal Government*). In Philadelphia the Octavia Hill Association has during the year worked out plans for a city block with workingmen's homes around a playground in the center. The carrying out of this plan, which is to be on a self-supporting basis, has been delayed by the European War. The City Club in Chicago closed late in the year a "neighborhood-center plan" contest where prizes were offered for plans showing the best grouping of facilities for neighborhood activities. The plans are to be part of an exhibition held early in 1915.

Rural Recreation.—One of the interesting experiments of the year has been at the "Little Country Theater" at the North Dakota Agricultural College. Here a hall has been employed about the size usually found in country places. All the scenery and costumes have been made by students and have been of simple character such as could be duplicated in the average country town. One-act plays have chiefly been used, such as would be feasible without long preparation. The students so trained are ready to become leaders of amateur dramatic clubs in their home towns. The University of Wisconsin has developed its university extension work until it covers musical entertainments and lectures after the style of the old-fashioned lyceum. About half of the programmes are lectures and half entertainments. Twenty-four other states have started similar work in a more or less limited way, thus furnishing at cost the routing machinery and compelling the commercial lyceum bureaus to raise their standards of talent. The University of Kansas has opened a contest to close in the spring of 1915, with a prize for the town in the state which is the best place in which to rear children. Two of six points for judging are on playground and athletic facilities and social advantages. Briefs are to be submitted and visits made by the child-welfare department of the University for the final decision.

Pageants.—Ten to fifteen pageants have marked the year. Two of the most striking were those at St. Louis and Cape Cod. The St. Louis pageant was notable because it was the first time so large a community was roused to interest in a really artistic pageant. Over 500,000 persons attended the four performances. On the artistic side it marked the greatest advance so far in the night pageant and the use of artificial lights as a feature of scenic effects in pageantry. The pageant of Cape Cod was notable for the complex coöperation required, 15 towns taking part. It was also marked by a closer unity in the music, the motifs being coördinated instead of being merely related in series; and by an advance in the art of pageantry coloring in the use of costumes, light and the time of exposure of different color effects.

Courses in pageantry have been given for two or three years at the summer schools of Dartmouth College and the Massachusetts Agricultural College. In 1914 the University of Wisconsin opened a course in the summer, concluding with a practice pageant given by the students. The American Pageantry Association has developed its educational work by a series of bulletins reporting pageants and giving technical suggestions for their organization.

National and State Parks.—Congress created during the year the office of Landscape Engineer and Superintendent of National Parks. The new appointee declared his policy to embrace the improvement of the accessibility of national parks, the establishment of headquarters for the national park system in San Francisco and an attempt to "keep in the Unit-

ed States two hundred million dollars of the five hundred million dollars expended by tourists abroad." The Bear Mountain Reserve in New York State is coming gradually to take a place in the recreation life of New York City through the development of boat connections and the opening of the reserve for camping parties.

The new Federal commissioner of immigration at New York has developed playground and game facilities for the children of immigrants detained at Ellis Island. Children of all nationalities seem to be able to get together in the democracy of games which have come down for generations even where they cannot understand each other's language.

Surveys and Exhibits.—The year has been marked by the first state survey of recreation and by a further evolution in the combination of former types of surveys. A Recreation Inquiry Committee was created by act of the legislature in California to conduct a recreation study of the state, although no appropriation was made for its work. This committee reported to the governor late in 1914 covering reasons for the need of recreation, existing conditions and suggestions for improvement of facilities. The Russell Sage Foundation has issued a recreation survey of Springfield, Ill., distinguished by plans for playgrounds of different sizes and types of use. The City Club of Milwaukee published during the year a study which combines the two types of surveys previously made, namely, the exploring type and the efficiency type. The purpose of this survey was to see, in a city where a public recreation system had been running about three years, how much work it was doing, how efficiently and how much unmet need remained. It showed that a remarkable beginning had been made, but only a beginning, since municipal recreation was at present providing only three per cent. of the dancing and theater entertainment, five per cent. of the picnics, seven per cent. of the children's summer playgrounds, 30 per cent. of the athletic sports and 85 per cent. of the swimming. The study also covered work of coöperative and philanthropic organizations and commercial agencies.

The Playground and Recreation Association of America issued a report during the year which makes it possible to compute roughly how near the recreation problem of the country is to being solved. The report referred to says that 24 million of the 30 million children of the country still live in communities where playgrounds or other organized recreation activities are not available throughout the year. Omitting 60 per cent. of the children who live in the rural communities of less than 2,500 inhabitants, we find that about one-half the children living in cities have some form of a public recreation system. Studies of such systems in individual cities show none, even the most efficient, that are yet doing more than one-third of the task which would fall to a public system after they have left to private and commercial agencies all that they could handle. This would indicate that not over one-sixth of the city recreation problem for the children's ages is at present being reached. Surveys of rural districts show an equal need of recreation, although from different causes than congestion, but less is being done in rural districts because of the difficulty and expense of reaching these scattered groups.

SOCIAL WORK OF THE CHURCHES

CLINTON ROGERS WOODRUFF

Federal Council of the Churches of Christ.—The Federal Council of the Churches of Christ in America has a commission made up of official representatives of 30 constituent bodies of the Federal Council, and numbers 125 members. The secretary is Rev. Charles S. Macfarland (105 East 22nd Street, New York). The executive force includes five associate secretaries, representing various denominations, and a field investigator for country life. The chief purpose of the Commission is to secure coöperation among the church commissions and to create social-service movements in those religious bodies which have not hitherto had such commit-

tees. The Commission has issued during the year a large amount of literature, including the *Yearbook of the Church and Social Service*, which is distributed by the denominational commissions, and investigations of the country church, an official survey for rural communities, a community-study pamphlet, a social-service catechism, and about 25 other documents. Committees representing the churches have investigated industrial conditions at Paterson, N. J., and in Michigan and Colorado. The campaign to secure one day's rest in seven for industrial workers which was instituted by the Commission, and in which it has coöperated with the American Association for Labor Legislation, has been carried on by a committee numbering over 600 members distributed through the various states. The usual observance of Labor Sunday is encouraged. The special committee on church and country life has arranged for a general survey of Ohio to be carried on by the churches in coöperation with the Ohio Country Life Association. It is proposed to make this survey as complete as possible, including the questions of financing the country church, the training of country pastors, coöperation and federation, allies of the country church, and the status and possibilities of the country church as a community center.

Roman Catholic Social Service.—The Federation of Roman Catholic Societies maintains a Social Service Commission (Rev. Peter E. Dietz, secretary, 503 Murray Ave., Milwaukee, Wis.) whose activities are of an educational and propagandist nature. Two circulars have been sent to a thousand centers of the Federation; 13,450 pamphlets and books have been sold. Besides editing the social-service section of the Federation *Bulletin*, news letters have been sent weekly to the press of every language. Several strike situations have been investigated and reported upon, notably the great copper strike in Michigan, and one strike has been settled directly through the work of the office. Conferences have been held with organizations interested in the same or similar lines of work, seven of which took place in Europe for the purpose of bringing about proper Roman Catholic international social relations. These conferences have been held in England, Belgium, France, Germany and Spain.

Labor Day celebrations have been encouraged through circulars and press organs. The Commission's office has kept closely in touch with the labor movement of the country and many of its leaders and was represented at the November convention of the American Federation of Labor. There has been also practical coöperation with the Industrial Relations Commission of the United States Government and with the National Civic Federation and similar movements of national scope, some of them of a legislative and some of a deliberative character.

The social service of the Federation is not limited to its Social Service Commission. Separate and distinct but similar institutions are in existence, as well as the large number of so-called social-service commissions of the state federations of Roman Catholic societies and the county federations, some of which perform as much if not more work than the central office. In fact, the whole work of the central office conceives its function to be that of bringing the individual forces to work together. A conference of such associations, commissions and societies was held in conjunction with the annual convention of the American Federation of Catholic Societies at Baltimore, Sept. 27-30, the proceedings of which will be published in pamphlet form.

Joint Commission of the Episcopal Church.—Since Jan. 1 the Joint Commission on Social Service, which was re-appointed at the General Convention of 1913 (*A. Y. B.*, 1913, p. 409), has continued its campaign of organization and education of the Church for effective social action in province, diocese and parish, in coöperation with recognized secular agencies of social reform and social agencies of other communions. Partly through the Commission's efforts, there has been an increasing recognition of the necessity for correlating social service with missions and religious education, particularly in relation to the new provincial system, through the

appointment of special provincial boards charged with these respective functions. To facilitate the organizations of social service, the commission has during the year issued a "Proposed Canon of Provincial Social Service." In addition, the Commission has attempted coöperation with various church agencies of social and moral reform, such as the social-service department of the Girls' Friendly Society, the Church Mission of Help, etc. Coöperation with the Commission on the Church and Social Service, appointed in 1908 by the Federal Council of the Churches of Christ in America, has also been effected through the participation of the Commission's secretary in an investigation of the Paterson, N. J., strike of 1913 (see *supra*). Occasion has been taken further to support reform legislation of state or nation at the instance of recognized voluntary and governmental agencies. The Commission has also, during the past 12 months, appointed special committees to investigate prison labor, social insurance and other phases of social reform. These committees have presented special reports, including recommendations to diocesan social-service commissions.

Under the head of education may be mentioned a "Correspondence Course for Parish Workers in Industrial Communities" (in ten lessons) prepared by the Commission's secretary for the use of the General Board of Religious Education; other courses are in contemplation. A further means of education has been through the use of a traveling exhibit, including the twenty-odd charts displayed at the last General Convention, which have been on view during the year at diocesan conventions and provincial synods. Secretarial propaganda has also been carried on through correspondence and special articles in the church press and various organs devoted to social reform. The Commission's chief effort in the field of publicity, however, has been the preparation of a volume of 200 pages, *Social Service at the General Convention of 1913*, which contains the twenty-odd addresses on various phases of social service delivered during the social-service week in connection with the last General Convention, and a reproduction of the exhibit charts above mentioned. The secretary of the Commission is the Rev. Frank M. Crouch, Church Mission House, 281 Fourth Ave., New York.

Baptist Social Service.—The progress of social service among the Baptists is marked in two directions, in the general acceptance of social service as a necessary part of the Christian programme, and in the organization of the churches for effective work in this direction. In state conventions and in the Northern Baptist Convention it has a recognized place on the programme. The United Missionary Campaign representing all of the Baptist missionary agencies places social service as item two in its platform of church efficiency.

Some three years ago the Northern Baptist Convention adopted a recommendation of the executive committee to the effect that every church should have a constructive programme "for serving the social needs of its community either individually or through the largest possible coöperation with other agencies of human uplift." The American Baptist Publication Society, on the recommendation of the Northern Baptist Convention, has created a Department of Social Service and Brotherhood. This Department has as its secretary Rev. Samuel Zane Batten, with headquarters in Roger Williams Building, Philadelphia. It sends out literature, gives information and serves as a clearing house for the denomination. Nearly all of the states now have social-service commissions, and some of these are earnestly promoting the work in their territory.

Other Denominations.—The Social Service Commission of the Congregational Churches (Rev. Henry A. Atkinson, secretary, 14 Beacon St., Boston) is organized to serve the causes of industry, country life, social service, organized charity and men's work. It conducts a correspondence course in social-service studies and publishes numerous pamphlets and leaflets. The Methodists maintain an active work along social-service lines through its commission, of which the Rev. Harry F. Ward, 2512 Park Place, Evanston, Ill is secretary. The Department of

Social and Public Service of the American Unitarian Association (Elmer S. Forbes, secretary, 25 Beacon St., Boston) maintains a ministers' institute, a social-service bulletin and a bureau of information.

IMMIGRATION

FRANK J. WARNE

Immigration During the Fiscal Year.—The fiscal year ending June 30, 1914, marks the largest immigration to the United States of any year in its history with the single exception of 1907, the total number of immigrants being 1,218,480, a smaller number by 66,869 than the immigration of 1907. This is permanent immigration only, temporary or non-immigrant arrivals not being considered. These, however, have constituted in recent years an important and growing element, it being estimated by the Federal Bureau of Immigration that this element has increased the total number of arrivals since 1907 about 20 per cent. Including the non-immigrant aliens admitted (numbering 184,601), the total immigration for 1914 amounted to 1,403,081. To get the net immigration the departures for the year, numbering 633,805, must be deducted, resulting in an increase to our foreign-born population from immigration of 769,276. Of course, to ascertain the actual net increase in the foreign-born population account must also be taken of the deaths in the United States of resident immigrants.

Of the total number of immigrant arrivals for the fiscal year, more than 900,000, or as much as 75 per cent., were of the newer immigrant races; the older immigrant races, English, Irish, Scotch, Welsh, German, French, Scandinavian, etc., formed less than 20 per cent. The largest number from any single race was that of the Italians, amounting to more than 296,000; the Hebrews numbered 138,051, and the Polish immigrants 122,657. These three groups form nearly 46 per cent. of the total permanent immigration in 1914. The countries in the order of their importance contributing the largest number of immigrants were: Italy, 283,738; Austria-Hungary, 278,152; and Russia, 255,660. Together these three countries contributed in 1914 more than 77 per cent. of our immigration from Europe and a little more than 67 per cent. of our total immigration from all countries. Measuring the tendency towards permanency in the United States of Hebrew, Italian, and Polish immigrants we find, by comparing the departures of 1914 with the arrivals for the same year, that for the Poles and Italians the returning immigrants were nearly 28 per cent. of those arriving, while in the case of the Hebrews the departures from the United States were only about five per cent. of the arrivals. This indicates that as between these three groups the Hebrew immigration has attached to it greater permanency in regard to remaining in this country. Among the Italians and Poles is to be found a larger number of "birds of passage," immigrants coming here only temporarily.

Another interesting and important feature of immigration for the year is the fact that of the total of 1,218,480 permanent arrivals, as many as 514,460, or more than 42 per cent., were "laborers" and "farm laborers"; an additional 144,409, or nearly 12 per cent., were "servants." Only 14 per cent. of the year's immigration was classed in occupational groups by Government officials as skilled and 1.20 per cent. as professional.

Immigration during the year continued to manifest the same tendency in its distribution in the United States as has been conspicuous throughout its entire history, that is, its principal destination was the north-Atlantic and north-central states, in which two geographical sections is to be found 87 per cent. of our total foreign-born population. New York as usual was the destination of the largest number of any single state, those going there numbering 344,663, or 28 per cent.; to Pennsylvania 184,438, or 15 per cent.; to Illinois 105,811, or about nine per cent.; to Massachusetts 93,200, or about eight per cent. Thus 60 per cent. of the immigration for 1914 had its destination in these four states.

Effects of the European War.—Since the close of the last year there has been a striking and a very unusual falling off in immigration, until at the present writing it has virtually ceased. This is due to the effects of the European War. Some indication of this very unusual situation is obtained from a study of the statistics of alien arrivals at the port of New York for the months of June, July, and August, 1914, compared with the same period in 1913. During these three months of 1914 there was a decrease of 214,243, nearly 60 per cent.; for August alone the 1914 figures show a decrease of nearly 73 per cent. From Aug. 1 to Sept. 10, 1914, the number of immigrants to the United States was only 50,807, as compared with 179,362 for the same period the previous year, a decrease of 128,555, or nearly 72 per cent. The tendency noted would have been even greater had not virtually all these immigrants planned their trip and started on their journey before the outbreak of the war.

The effect of war upon immigration is not only to decrease the number of arrivals but also to increase the number of departures. This is illustrated in the case of immigration to the United States from Bulgaria, Servia and Montenegro during the recent Balkan War, which decreased from 15,130 in 1910 to 9,087 in 1913 and which again rose to more than 15,000 in 1914. Greek immigration decreased from 39,135 in 1910 to 31,566 in 1912 and rose to 45,881 in 1914. While we admitted only 1,753 immigrant aliens from Bulgaria, Servia, and Montenegro in 1913, there departed from the United States for those countries as many as 9,664; from Greece there came in 1913 only 22,817, while as many as 30,603 emigrant aliens left the United States for Greece. After the close of the war, immigration from these countries again resumed its former tendency, that of a preponderance of immigration over emigration.

There have been a number of prophecies as to the general effect of the present war in Europe upon the volume of future immigration. These prophecies are contradictory, some being to the effect that immigration to the United States will increase and others that it will not only not increase but will also be considerably checked. All such prophecies fail to take into consideration changed conditions. It is true that immigration to the United States increased strikingly following the Napoleonic wars, the fall of Warsaw in Poland in 1831, and also at the close of the upheavals in Germany in the forties, as well as of political disturbances at other times and in other countries. The effect of the European War on immigration to the United States, however, is more than likely to have the result, temporarily at least, that is desired by those favoring restrictive immigration legislation.

The Immigration Bill.—Following President Taft's veto of the Burnett bill during the closing days of his administration (*A. Y. B.*, 1913, p. 7), the agitation for immigration restriction became even more insistent and resulted in the introduction in the Sixty-third Congress of bills which also contained the literacy test. This was embodied in a bill finally passed by the House of Representatives by a very large majority but which has since been buried in the Senate Committee, primarily because of the administration's desire to enact into law its currency and trust programme (see I, *American History*). In consequence, the literacy test provision, vetoed by Presidents Cleveland and Taft, has not as yet been passed upon by President Wilson. The passage of this restriction-test provision under the Taft Administration and its repassage by the Democratic House under the Wilson Administration indicates clearly the sectional differences on this problem. The vote showed the members of Congress from the South and West to be largely in favor of immigration restriction; the strength of the vote against the bill was among Representatives from the industrial and manufacturing centers of the north-Atlantic and eastern north-central divisions. The existence of this attitude in those sections is explained partly in the fact that they contain by far the larger number of immigrants, who, of course, are strongly opposed to any restriction policy and whose views necessarily influence the

vote of their Representatives; and partly in the fact that the owners of the large industries desirous of securing cheap labor also oppose any restriction, their views also affecting the vote of their Representatives.

The Care of Immigrants.[1]—The immigrant's usual unfamiliarity with American language and customs, his sudden transfer in many cases from rural localities in his home country to large cities here, his frequent lack of a definite destination, and his not infrequent low grade of intelligence, combine to make him a prey to exploitation and to handicap him in establishing himself. His protection, therefore, has come to be an object both of governmental and philanthropic activity. In three states, Massachusetts, New Jersey and California, commissions to study immigration and make recommendations reported in 1914, and in a fourth, Rhode Island, a commission was created to report in January, 1915. The Massachusetts commission found lax methods of dealing with immigrants at the port of Boston. Detention quarters are inadequate, while passed immigrants are discharged into a waiting room immediately after inspection without further care or guidance. The law affecting employment agencies lacks "all the safeguards of a good law." Housing conditions among immigrants are generally poor, outstanding features being dark rooms, overcrowding and bad sanitation. Special provision for the education of immigrant children exists in only a few localities and there to a limited extent; the commission estimated that 200,000 of the 224,000 non-English-speaking residents of the state in 1910-11 did not receive adequate educational attention. The commission's recommendations touched all aspects of the problem, the most important being for a state Board of Immigration to care for newcomers in various ways. A law for the creation of such a board failed to pass the legislature.

The New Jersey commission also recommended many new laws and institutions to safeguard the social and industrial life of immigrants. Like the Massachusetts body, its most important suggestion was for a state bureau such as already exist in New York and California. The commission found that most immigrants to New Jersey go to the congested industrial centers in the northeastern part of the state. It recommended the establishment of free employment agencies under the Department of Labor, to serve both as bureaus of placement and distributing centers. Finding that there had been a great increase in strikes during the last three years and that 80 per cent. of the strikers in 1913 were foreign-born, the commission recommended a permanent board of arbitration to settle industrial disputes. The present inadequate educational provision for immigrants was urged as a reason for a more practical system of instruction.

The California Commission on Immigration and Housing, created in 1913 in expectation of a stream of immigrants from Europe and Asia after the opening of the Panama Canal, made a preliminary report on conditions in July. It undertook six lines of investigation: the tenement-house problem in San Francisco; lodging houses and cheap hotels in San Francisco; the naturalization of aliens; the education of the immigrant; the alien and the administration of civil and criminal law; and the immigrant and transportation. While it reported that the irregular, seasonal character of summer employment and the distress of winter unemployment are two of the most perplexing problems of the immigrant in California, it found that the "most deplorable suffering and waste in immigrant life is not found in their industrial activities, or in their legal relations, but in their homes." Fraud and deceit in selling land to immigrants, it declared, is more widespread than has hitherto been realized.

Cleveland, where aliens number 34.9 per cent. of the total population and where 50,000 newcomers settle yearly, inaugurated on Jan. 1 a municipal system of caring for immigrants which puts her in the lead of American cities in that respect. This system is carried on by the commissioner of employment, one of five divisions under the city's Department of Pub-

[1] This section is contributed by Winthrop D. Lane.

lic Welfare. Its aim is to make the newcomer feel immediately at home, to facilitate his naturalization and education, and to quicken his industrial success. A municipal guide service provides for the meeting of every train. The two days of each month on which naturalization certificates are issued are made gala occasions, called "naturalization commencements." Every naturalized alien is made a member of the American Club, which provides education related to the newcomer's needs. The Club compiles its own text-books for immigrant schools and has instituted a course of training for immigrant teachers. Social meetings of this club once a month give the naturalized foreigner American contact and friendliness. The commissioner of employment has the coöperation of state, city and private agencies in finding work for aliens.

Chicago established at the end of 1913 a Federal Immigration Station, to which all immigrants with that city as their destination are taken. Their addresses are investigated, doubtful homes are visited, and in general the exploitation that has immemorially greeted the newcomer is combated.

Efforts were increased during the year to make Ellis Island a more welcoming and instructive threshold for the hundreds of thousands who annually pass through it. The new commissioner at the Port of New York, Frederic C. Howe, has introduced playgrounds and schools for those detained there and has undertaken in other ways to "humanize" the place.

The Festival and Pageant of the Nations in New York City in June, which revealed the native songs, dances and costumes of immigrants to Americans, and the Fourth of July celebration for new-made citizens in Riverside, Cal., which closed with symbolic tableaux, are typical of the newer efforts being consciously made toward assimilation.

SOCIAL AND MENTAL HYGIENE

ALEXANDER JOHNSON

Agencies of Promotion.—The subjects social and mental hygiene are so nearly related that they are often spoken of together. The purview of the American Social Hygiene Association, that of the National Committee for Mental Hygiene, and that of the National Eugenics Association have much in common, including some of their aims and purposes. Perhaps the most important fact to record for this department for the year 1914 is that social and mental hygiene has become recognized as a possible subject for practical work and not merely for study. This is largely due to the work of the societies and their auxiliaries in a score of states.

Prevention of Vice.—The year began with a merger of the American Vigilance Association with the American Federation for Sex Hygiene, the united societies taking the name of the American Social Hygiene Association, with Charles W. Eliot, of Cambridge, Mass., as president. The purposes of the organization are thus expressed:

> To acquire and diffuse knowledge of the established principles and practices and of any new methods which promote or give assurance of promoting social health; to advocate the highest standards of private and public morality; to suppress commercialized vice; to organize the defense of the community by every available means, educational, sanitary or legislative, against the diseases of vice; to conduct on request inquiries into the present condition of prostitution and the venereal diseases in American towns and cities; and to secure mutual acquaintance and sympathy and coöperation among the local societies for these or similar purposes.

The consolidation of the two societies has resulted from the realization by both of the need of unifying existing national associations which inevitably encroached on one another's field. Both were essentially educational and both called for active investigation as a precedent to action. Both felt that work would be strengthened and results multiplied by the merger.

The American Vigilance Association, founded in 1906, has been a leading

factor in drafting laws to penalize commercialized vice in 31 states; it has made investigations of conditions in five cities and one entire state, and has published a monthly magazine, *Vigilance*.

The American Federation for Sex Hygiene, founded in 1909 by Dr. Prince A. Morrow, has developed 23 constituent societies in 18 states and has perhaps been best known for its exhibit on sex hygiene. The Association held a conference in October at which possible varieties of work were outlined. The interests participating in the conference, besides the two societies which had united, included life-insurance companies, city commissioners of charities, Sunday school associations, camp fire girls, probation-officers' associations, departments of health of cities and states, universities, boards of education, eugenics associations, Y. M. C. A. and Y. W. C. A. and many others. A tendency toward helpful coöperation and away from rivalry of the various agencies was clearly shown.

Prevention of Defectiveness.—The National Committee on Mental Hygiene, which lays its chief emphasis on the prevention of insanity, called the first convention of mental-hygiene societies in May. Eight state societies responded. Emphasis was laid on conservation and education for life. The list of state societies with their dates of organization is as follows: Connecticut, 1908; Illinois, 1909; New York, 1910; Maryland and Pennsylvania, 1911; New Jersey and Massachusetts, 1912; North Carolina, 1913. Societies are forming in eight or ten other states and also in Sydney, N. S. W., Canada, and North Africa. An interesting feature of the conference was a large exhibit of the work of patients in hospitals for the insane. One result of the work of the National Committee for Mental Hygiene is a provision in the bill now before the House of Representatives to create divisions of mental hygiene and rural sanitation in the U. S. Public Health Service. The division of mental hygiene would "study and investigate mental disorders, and their causes, care, and prevention."

The work of the National Committee has called attention to the fact that insanity, epilepsy and feeble-mindedness are really three closely related factors of one great problem. The work of the Illinois branch may be taken as typical of others. It has specialized on social service work for paroled and discharged patients from state hospitals for the insane with good success. Good coöperation has been secured with the state Board of Administration and the state Charities Commission. Voluntary commitment has been stimulated on the part of persons in danger of mental breakdown. The present expressed need of the society is of arrangement for occupation and good environment for border-line cases. The society is planning an experimental industrial school and workshop for feeble-minded patients, which they hope to make practically self-supporting.

Eugenics.—The second annual meeting of the Eugenics Research Association afforded a glimpse ahead of the development of the science. The following present urgent needs were brought out: more emphasis on the study of individual mental traits; closer standardization of intelligence tests; better definition of feeble-mindedness (or feeble-mindness, as was a suggested change of term); the creation of tests that shall be not merely psychological but shall measure ability to learn and adaptability. The inheritance of eroticism, bad temper, alcoholism and *Wanderlust* was strikingly demonstrated in a series of charts shown by the president of the association from the Eugenics Record Office. An interesting feature of the occasion was a continuation study of the Jukes family; up to the present time, 2,100 individuals of this family having been studied. Certain branches of the family now show normal characteristics, but by far the greater portion, including some who have sought better environments, show the same traits as those attributed to their ancestors in Dugdale's original study made in 1877. Another interesting study was reported of a degenerate family of old American stock which, in an isolated community, had multiplied until the town has become a by-word for alcoholism, immorality and feeble-mindedness. These studies were examples of many that have

been, and still more that might be, made. It was announced that the state Board of Charities is taking a census of the feeble-minded in New York State.

Race Betterment.—A Race Betterment Congress was held at Battle Creek in January. During that period of the conference devoted to assembling evidences of race deterioration, startling facts were made apparent. It was shown that 50 per cent. of the children born in the United States die in infancy; that one man out of ten is unfit to reproduce his kind; that there is a staggering increase in insanity and a strangely corresponding increase in crime; that preventable diseases yearly claim many thousands, according to actual statistics. Though it was shown that the average life is appreciably longer than in former years, there is a decrease in life expectancy, which is significant when it is considered that the period of men's lives richest in helpful possibilities is that beyond the half-way mark of their careers. The appalling increase in deaths from cancer, Bright's disease and other maladies of modern civilization was clearly pointed out by a succession of speakers. There were two regular sessions daily during the conference and a number of informal meetings in which delegates generally were invited to express their views. The spontaneity of interest manifested in these open sessions pointed out very clearly the popular interest in the whole subject of race improvement. Notwithstanding the pessimistic tone of the earlier papers many hopeful views were manifested and constructive measures proposed. The advisability of forming a national or international race betterment league was discussed.

Sex Education.—The progress of the movement in favor of sex education has been steady through the year. Developments have shown at least the beginning of a tendency away from the sensationalism which marked its inception. Less emphasis is placed on the merely physical and more on the mental, moral and spiritual aspects of sex and its functions. The use of the fear of the venereal diseases as a motive to purity is not quite so noticeable as it was. In this higher view many of the churches are helping. Some religious bodies which at first were afraid of sex education, as a merely material and therefore a dangerously sensual thing, now see that the higher concepts must prevail if success is to follow and that therefore they clearly belong in the ranks of those struggling to bring it about.

At the Y. W. C. A. training school a notable series of lectures on sex education laid emphasis on the hygiene of the imagination and the individual's feeling of responsibility toward himself and toward society. Following this series a traveling lectureship on sex hygiene was established. As the National Board has affiliated assemblies in 675 schools, colleges and universities the possibility is of a wide-reaching influence.

The New York State Board of Health is conducting a series of investigations of venereal diseases in state institutions. Under its division of publicity and education it has a department of education in social hygiene, employing a competent woman physician lecturer with special reference to sex hygiene and child welfare. Her services are placed at the disposal of local clubs and other organizations, chiefly in the state outside New York City.

The New York University School of Pedagogy offers a course of lectures on social hygiene for which credit is given toward a degree. The Oregon Social Hygiene Society has a "back to the home" committee, intended to arouse parents to a sense of their responsibility toward the moral and physical welfare of their children. At the National Conference of Catholic Charities, a women's section was organized. This is devoted to the problem of the protection of young girls. A committee was appointed to take steps in that direction in connection with the Panama-Pacific Exposition in San Francisco in 1915.

Venereal Disease.—At the National Convention of Alienists and Neurologists stress was laid on syphilis as a cause of mental defects of all kinds. It was urged that venereal diseases should be made reportable; that public lectures should be given and bulletins published freely on vice diseases; and that sex hygiene should be taught

in the public schools above the grammar grades, to the sexes separately.

The relations between venereal disease and mental defects, insanity, epilepsy and feeble-mindedness have been frequently and notably emphasized during the year. This was very apparent at the National Conference of Charities and Correction, not only by papers read at the section meetings but in numerous references during the proceedings, whenever mental defect or crime were the subjects of discussion.

The Laboratory of Social Hygiene of the New York State Reformatory for Women, the founding of which was reported in the YEAR BOOK for 1912 (p. 437), has completed a study of 100 girls and published a first report. Twenty of the 100 were found to be feeble-minded and needing permanent custodial care. Ninety have been sexually immoral and 63 were professional prostitutes. Only 14 of the 100 were free of venereal disease. Fifty-six were recommended as proper subjects for the reformatory. Most of the girls were American born, 41 were of American parentage. The laboratory declares that as time goes on its studies will furnish a mass of useful data on causes of crime and point the way toward preventive work. (See also *Criminology and Penology, infra.*)

The California State Board of Health is conducting Wassermann tests at its hygienic laboratory which are free to patients who are unable to pay. The service is state-wide except for residents of cities of over 20,000 population, which are expected to provide their own hygienic laboratories.

In two states, Pennsylvania and Wisconsin, so-called eugenic-marriage laws were enacted in 1913. In Wisconsin the law requires a medical certificate of freedom from venereal disease of the male candidate for matrimony as a prerequisite to securing a license. In Pennsylvania the statute requires in addition to the above, a certificate that the applicant is not insane, feeble-minded or epileptic. In both states the laws have aroused much opposition, and attempts to enforce them have not been entirely successful. In some cases the license clerks have disregarded the laws.

CRIMINOLOGY AND PENOLOGY

PHILIP KLEIN

The Campaign of Education.—The year 1914 has seen considerable progress in the fields of criminology and penology. Particularly is this true of the publicity and general educational work. There were in the several states very active campaigns for the alleviation of existing evil conditions in penal institutions, and for the introduction of progressive legislation and methods. Noteworthy in this respect was the campaign by the Prison Association of New York for the abolition of Sing Sing Prison; the efforts of the Prisoners' Aid Society of Maryland for the introduction of parole and the indeterminate sentence; and the work in Alabama for the improvement of jail conditions, and the introduction of parole, probation and the indeterminate sentence. "Prison Sunday," the last Sunday in October, has now become a regular feature of the public education on penal matters, and was observed more generally during 1914 than ever before, particularly in the states of Connecticut, Indiana, Massachusetts and New York.

A large and well known national organization has taken up the cause of prison reform during the year for the first time. The Metropolitan Section of New York and New Jersey of the Women's Department of the National Civic Federation arranged a large public meeting and a series of conferences on prison reform in New York City on March 6 and 7, to which some of the best known penologists of the country were invited as speakers. One of the results of these conferences was the establishment of a permanent joint committee for publicity and education for the state of New York.

A course of training for workers in the field of penology was given for the first time at the New York School of Philanthropy by Dr. O. F. Lewis; it was attended by workers of high standing in the field. In Jackson, Mich., a state prison extension department was established for the purpose, it was stated, first, of keeping

young men out of prison; secondly, of helping paroled prisoners keep their parole; thirdly, of preventing recividism. A lecture campaign and a systemized attempt at coöperation with local organizations were inaugurated for this purpose by Chaplain E. H. Lougher of the Michigan State Prison. The press has been more helpful than ever in bringing to public attention the needs, arguments and facts of prison reform. In brief it may be said that the education of the public on penal matters in 1914 has made tangible progress.

Criminology. — In considering the progress of criminology, it must be borne in mind that this science has been developing in two directions: one, the objective and statistical, the other, the subjective and psychological researches. The year 1914 has not brought any important published contributions. It has taken a whole year to digest and properly coördinate Goring's book on the *English Convict* (*A. Y. B.*, 1913, p. 444) with other works on statistical criminology. It now appears that the work does not occupy as important a position in criminology as it first appeared to be entitled to. Interesting and valuable criticisms of his book have appeared in two symposiums in the July and September numbers of the *Journal of the American Institute of Criminal Law and Criminology*. This publication, incidentally, is foremost in importance among the American publications in this field.

Psychological Research. — Psychological research has continued during the year in the various laboratories existing for that purpose. Dr. Healey's work in the Chicago Psychopathic Clinic has continued to collect valuable data. Dr. Healey summarizes the status of such work with offenders in the June number of the *Delinquent*. In Chicago a new criminal laboratory was voted by the judges to be established in connection with the municipal court. This work is to be taken charge of by Dr. William J. Hickson, to be assisted by Miss Mary R. Campbell, of Milwaukee. These and other laboratories, some connected with courts, others with institutions and universities, are preparing valuable material. Criminal studies of juveniles have appeared to some extent. Among these should be mentioned the study made by Edward Barrows, for the People's Institute of New York, of "Child Play and Child Crime," in probably the worst district of that city; also the results of the study of juvenile delinquency and dependency in Los Angeles County, for the year 1912, which appeared in the *Journal of The American Institute of Criminal Law and Criminology*. Other similar studies have been those of vagrancy, made by the New York Municipal Lodging House and published in the *Journal of the American Medical Association*, and a study of the first 100 girls admitted to Bedford Reformatory through its new reception house, the chief feature of which is the careful psychological, pathological and sociological observations conducted by the Bureau of Social Hygiene. A bill was introduced in the House of Representatives for the establishment of a criminological laboratory in connection with the Federal prisons (*Jour. Am. Inst. Crim. Law and Criminol.*, July, 1914) but was not passed at the end of the year.

Lynchings.—Considering only lynchings proper, that is, mob assaults on individuals resulting in the death of such individuals, the number accounted for in the issues of the *Crisis* from January to December, 1914, inclusive, was 45 lynchings, resulting in the death of 50 persons. Disregarding the January number, which probably reports deaths of the previous year, there remain 42 lynchings, resulting in 47 deaths. The November number of the *Crisis* gives a summary of the total number for the first nine months of 1914 as 35 lynchings (the total number for 1913 is given as 79). The lynchings in 1914 include four white persons, of whom one was a policeman lynched together with a negro, and one a deputy sheriff lynched together with two negroes.

Prison Administration and Management.—The principles of penal administration are the attainment of business efficiency and order without abuses or curtailment of the privileges of the prisoners. Wastefulness and laxity almost invariably are found to be accompanied by abuse and

deterioration. Dr. William H. Oates, State Prison Inspector of Alabama, well known for his active endeavors for the improvement of prison administration in Alabama, has proposed improvements by which he says he can save $150,000 annually for the state, while considerably improving the living conditions of the prisoners within the state.

In Massachusetts, Chairman F. L. Randall proposes to bring the jails under the general administration of the State Prison Commission, and take them out of the hands of the county boards. This would be a tremendous advance. In Nebraska the State Prison inmates are to be classified as first, second, and third grade inmates, the classes being indicated by the color of the clothing. The classification of prisoners in the New York State prisons has been changed to accord with the character and behavior of the inmate, rather than with his prison record. In New York City, the administration of the drug danger has been a serious matter, and a special law was passed to restrict the sale of habit-forming drugs. Extensive detective work has been carried on, and strict regulations have been established for stamping out the evil from New York City prisons. An investigation by the New York State Prison Commission resulted in a number of recommendations, chief of which, and significant from the standpoint of administration, are the following:

That all prison officers detected in smuggling contraband articles into prisons be criminally prosecuted, and that no officer dismissed for such smuggling, or for secretly taking communications from or to prisoners, either by mail, or otherwise, be ever reinstated.

That visitors be not allowed to come in personal contact with prisoners, with the possible exception of Great Meadow Prison, and that all visitors be carefully watched while in prison.

That letters, printed matter, cards and washable goods be the only articles delivered to prisoners received from sources outside the prison, and that all additional supplies for prisoners permitted under the prison rules be purchased by the prison officials under supervision of the warden, from money earned by the prisoners while in the prison, and that the washable goods be laundered within the prison before delivery to the prisoners.

That all prisoners who work outside the prison be carefully searched before they are mingled with the prison body.

That all parcel post and express packages for the industrial and maintenance departments be opened and examined by prison officials solely, and not intrusted to prisoners, and that all supplies and merchandise received by freight or boat be examined as carefully as the facilities of the prison will permit.

That a special agent or officer be connected with the office of the superintendent of prisons, whose sole duty shall include frequent visits and investigations at the prisons with a view to ascertaining whether the smuggling of contraband articles exists.

That the "honor principle" which prevails in Great Meadow Prison and the Mutual Welfare League at Auburn Penitentiary be encouraged, and a self-protective sentiment be encouraged among the prisoners without relaxing the supervision necessary to the management of a prison.

The report concluded by declaring that there is no reason why the smuggling of drugs into a prison should not be stopped except in rare instances. The question is one of efficient administration. The responsibility is on the superintendent of state prisons and the wardens appointed by him.

Amelioration of the Condition of Prisoners.—The new idea of the treatment of prisoners for their reformation has as its corner stone the principle that the preservation of self-respect, the approximation in prison to normal life, and the abolition of cruelties and unnecessary restrictions are best fitted for the rehabilitation of the prisoner on his discharge. The amelioration of prison conditions should therefore be regarded in this light. In New York City an auto-bus has been provided to transfer prisoners from the New York City Prison to Sing Sing, to avoid a public exhibition of prisoners in transportation. In the Province of Quebec, the Montreal Street Railway has constructed a 54-passenger car for the transportation of prisoners, to run between Montreal and the new prison at Bordeaux, seven miles distant, probably the first car of its kind in America.

Stripes have been abolished in Arizona by Governor Hunt, who has

proved himself in this, and other ways, a prison reformer of note in the United States. Stripes are gradually being removed in the New York County Penitentiary. Talking has been allowed, particularly at meals, within the year in the New Jersey State Reformatory, at Rahway, N. J., in the state prison in Nebraska, and in the Ohio State Prison. Smoking on Sundays and holidays between 7 a. m. and 9 p. m., was allowed by Warden Allen of the Massachusetts State Prison.

Notable general improvements and grants of privileges have been made in the much discussed Maryland Penitentiary and in Sing Sing Prison, New York, by its new warden, Thomas Mott Osborne. The following are the Maryland Penitentiary improvements:

> Night schools have been established for both male and female illiterates. The lock-step has been abolished. The uniforms of the male prisoners have been changed from stripes to dark gray, and those of the female prisoners from blue check to dark gray. China dishes and aluminium spoons are used instead of tinware. The male inmates make a detour of the grounds in going to dining room and shops, and are permitted to exercise in the open air for three-quarters of an hour on Sundays. They march two abreast and each inmate is allowed to converse with his companion. The female prisoners are allowed to exercise in the yard three times a day on week days, and on Sundays for about two hours.
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> The convalescent sick are allowed to walk around the grounds the greater part of the day when the weather is favorable. The prisoner's hair is never clipped except occasionally for sanitary reasons on admission. Inmates now receive two shaves a week and one haircut a month *gratis*. They are allowed to smoke in their rooms. They are allowed to converse in a low tone in the dining room. Instead of one letter a month, they now have the privilege of writing every ten days. Entertainments are given on July 4, Thanksgiving and Christmas. The dark cell, whipping and cuffing up have been abolished. Instead of the dark cell, a well-ventilated room is now used, in which a bed and a blanket are placed at night. The punishment now in vogue consists of bread and water diet, the taking away of all privileges, the forfeiture of commutation, and, in extreme cases, compelling the prisoner who is locked in the cell to stand at the door without tension during working hours.
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> A list is sent to the Prisoners' Aid Association on the 15th of each month of those to be discharged the following month, so that, if necessary, provision can be made for their care until they find employment. An interne has been appointed, thus giving the institution the services of a physician instantly in emergency cases. This work was formerly done by a prisoner. A steam chest has been installed so that all clothes from the hospital can be disinfected and washed within the hospital grounds.

For the improvement of sanitary conditions, the Maryland Penitentiary has received an appropriation of $35,000 for a hospital for tuberculous convicts. In New York State the Prison Commission has gained power to follow its inspections by closing unsatisfactory city jails and town lock-ups through special legislation passed by the 1914 Legislature. As to punishment, Arizona, under its new governor, has abolished the "snake den," and other forms of cruel punishment, and has improved the food, both in quality and quantity.

The flogging of prisoners is apparently very slow in dying out. While Chief Justice Clark of North Carolina has handed down a decision declaring that flogging in North Carolina is not reasonable and that it can not be sustained, we find somewhat earlier in the year the county authorities of Beaufort, N. C., voting as follows:

> The superintendent shall keep in his possession a lash 18 inches long and more than two inches in diameter, and said lash may be split three times one-half way from the end. No convict may be whipped more than once during two consecutive days, and none shall receive more than 25 lashes at more than one whipping.

The Carolina Prisoners' Aid Society is making a special effort toward the abolition of whipping.

Recreation facilities in the prison have improved considerably. We find that the Massachusetts Reformatory for Women gave a performance of the "Pirates of Penzance" on June 6 to about 300 guests. About 60 of the women prisoners took part in the performance. Motion pictures have found their way into Sing Sing Prison in New York State, and in a num-

ber of other states. Recreation periods of one hour are granted to prisoners at Sing Sing and Auburn Prisons at the end of the working day on work days; similarly Saturday afternoons and Sundays are given them for recreation. Field days, with athletics and prize competitions, have become a regular feature at the Auburn, Great Meadow and Sing Sing Prisons in New York State. A supply of libraries, consisting mostly of 50 volumes each, for each of the county jails, has been contributed by the Jail Library Committee of New York State, so that at present some 40 county jails have been thus supplied.

Education of Prisoners.—In California 700 of the 2,000 prisoners at the San Quentin Prison are said to be taking correspondence courses given by the University of California. In Folsom Prison, of the same state, 324 students are thus enrolled. In the Michigan State Prison Warden Nathan F. Simpson has introduced a high-school department conducted under state supervision.

Military Prisons. — Considerable improvements in military prisons have been introduced by Secretary of War Garrison. The crux of his improvements is the classification by which military prisoners are divided into two groups and treated separately; one group consisting of offenders against military discipline, the other of offenders against statutory and common law. The importance of this classification and of the separate treatment of each group speaks for itself.

Prison Architecture.—A very important improvement in prison architecture was begun during the year and created much interest. It is the substitution of outside cells for the inside cell-block type of construction now in vogue. The splendid new Canadian Prison at Guelph has been built on this plan. The plans for the new Erie County jail in Buffalo, N. Y., and for some new prisons to be built in New York City are expected to be of this design.

Earnings of Prisoners and Support of Their Dependent Families.—The compensation of prisoners for their labor and the use of their earnings for the support of dependent families is one of the most important tenets of modern penology, and is gaining ground at a remarkable rate. The suit of an ex-convict in Rhode Island to recover wages from the Crescent Garment Co., a contractor with the state prison of that state, upon which no decision has as yet been handed down, will be an interesting and important test of the right of the prisoner to the product of his labor, though of course this matter is really not a question of right, but of social policy. In Alabama the Green bill proposes the use of prisoners' earnings for their families. Iowa is continuing the development of this system. Louisiana has attempted to establish the system in a bill introduced in the legislature during the year. In Massachusetts, the Chairman of the Prison Commission, F. L. Randall, has proposed a regular payment of $4 per month to each prisoner. In Ohio the dependents of prisoners serving sentence received their first payment in January. In that state those employed, while maintaining good behavior, are compensated. No prisoner can get more than $2.20 in any week. Almost $1,600 was sent out on three days of one week. In Oregon the wives of non-supporting husbands receive regular payments. In Pennsylvania Allegheny County has paid out considerable money to wives of convicts. In Rhode Island the Board of State Charities, in its last report, recommends the payment or compensation of prisoners. Thus far this compensation has been mainly for non-support cases, but the system is spreading to the general field.

The Honor System.—The extension of the honor system has been foremost among the factors in the present wave of prison reform. Important progress has taken place in this respect. In Arizona Governor Hunt allowed 30 prisoners to go in the company of one foreman and with no guard, to do some road work at a considerable distance from the prison. Escape over the mountain would have been very easy. Only three attempted it. The rest received two days off for every day's labor as a reward. In Alabama shackling of the prisoners is gradually being discontinued and placing them on their honor substituted. It

is said that there is one honor roll of men who can be trusted sufficiently to be allowed to go home for the night or to spend Sunday at home, and that five men are off in this way every night. At Fort Leavenworth Prison two prisoners who had escaped while on their honor were brought back by their comrades after a hunt.

The first honor convict camp was established in Georgia during the year. Some beginnings have also been made at the New Jersey Reformatory in Rahway, N. J. Honor camps in New York State, especially on road work, have become an every day matter. Texas, also, has fallen into line; the honor system is combined there with some form of profit sharing. A most interesting fact in this connection is that the "Golden Rule Brotherhood" at Sing Sing Prison, New York, which is an organization of convicts in the prison, raised $175 at one time during the year to aid in the capture of escaped prisoners.

Investigations and Studies.—With the growth of the spirit of fairness and help for convicts, and the efforts for reformation and rehabilitation, there naturally comes to light a number of abuses, which here and there result in investigations and special studies. Some of these investigations have proved quite important. Investigation of the Federal prison at Atlanta, Ga., undertaken by Dr. J. J. McKelway for the Department of Justice, following certain charges made by Julian Hawthorne, an ex-inmate, while exonerating the administration of most of the charges, nevertheless found room for a number of important improvements. Investigation of the Monroe County convict farm in Arkansas, by W. M. Rankin of the Humane Society, brought out some glaringly evil and insanitary conditions. In New York, an investigation by the State Board of Charities of the Bedford Reformatory is under way.

An illuminating investigation was made of the Kansas Penitentiary by F. W. Blackmar early in January. He criticized very severely the lack of light, schooling and ventilation, the presence of the bucket system and mine labor, the tremendous amount of tuberculosis and the large number of undiscovered insane. His recommendations were revolutionary and radical.

Prison Labor.—In a way, prison labor is the crux of the penal question. It should be borne in mind in reference to prison labor, first, that there ought to be labor; second, that it ought to be reformative, healthful and efficient, preferably outdoor; third, that under no circumstances should it be contract labor; and fourth, that it must not seriously conflict with free labor.

In Alabama it was proposed to discontinue labor in the mines. In Arizona Governor Hunt has started to make road work a principal form of labor. In Iowa the prison situation has been rather acute and interesting. Contract labor has received its death blow, although contractors are fighting hard to maintain their contracts. Prisoners receive compensation for overtime on contracts, also a percentage of all labor performed for the state, on the so-called "state-use" system. Of late the prisoners have been allowed to do odd jobs and farming of all kinds for neighbors, proving themselves trustworthy and efficient workers. They are much in demand in this way. The latest report is that the State Board of Control of Iowa is trying to lease a 10,000-acre tract to be worked by the prisoners. There has been some opposition to some aspects of this situation by labor unions.

At the Joliet Penitentiary in Illinois prisoners get a share of their earnings. In the Chicago Bridewell, the practice of hiring prisoners to private companies is to be discontinued; thus another form of contract labor goes. In Massachusetts, a beginning was made by legislative act towards reclamation work by the prisoners on land about the towns of North Billerica, Lincoln, Concord, Bedford and Carlisle. In Minnesota, with the abandonment of the old state prison, practically the last contract labor in that state ceased.

In New York State, prison labor has been used largely in road work, particularly in the state prisons. Elmira Reformatory in that state is to establish a brick plant, for the manufacture of road brick; and, perhaps most significant of all, a definite, and apparently successful, effort is being

made to provide labor for the county jails of the state. The Prison Association of New York is responsible for a good deal of the initiative in that direction. In Rhode Island the sentiment against contract labor is growing; the Board of State Charities has formally declared against it.

A complete list of states where road work by convicts is being carried on has been compiled by Dr. E. Stagg Whitin, and published in the April number of the *Delinquent*. Other important information may be found in the November number of the *Delinquent*, and particularly in Mr. Wilmot's work mentioned in the bibliography (*infra*).

Penal Legislation.—The tendency in penal legislation has been most markedly toward the development of compensation for prison labor and the extension of parole and the indeterminate sentence. Some legislation was attempted to pension officers of penal institutions, and the usual efforts to improve criminal law were made. The introduction of the public defender (existing in Los Angeles, and, we are told, in Alessandria, Italy), compensation for unjustly convicted prisoners, the rationalization of the treatment of the criminal insane, the simplification of a vast amount of technicality about criminal prosecution, particularly the many loopholes for criminals, were attempted.

Some important judicial decisions affecting prison legislation were handed down. One in Kentucky has resulted in the annulment of some excellent prison reform laws. In New Jersey sterilization has been declared unconstitutional. In Pennsylvania a commission for the revision of the penal laws has been authorized. Maryland has provided for an advisory board of parole for the suspension of sentence and for indeterminate sentences. Provision has been made for the establishment of a state prison for women, and the acquisition of a penal farm has been recommended.

New Penal Institutions.—The new state prison in Minnesota has been fully occupied during the year. The latest and probably the most modern institution planned in the United States has been begun in Bellefont, Pennsylvania, on the newly acquired 5,000-acre tract. A reformatory on an entirely new principle has been started for New York City, at New Hampton Farms. It is to take the place, eventually, of the present reformatory for misdemeanants of that city. In the same state, a state farm for women inebriates, provided for by the legislature in 1908, was opened on Oct. 1.

Parole, Probation and Indeterminate Sentence.—There is hardly a more important phase of progressive penology than the extension of these methods. The results of parole work vary from state to state. Returns give anywhere from five to forty per cent. of failures in keeping parole. In Kentucky the new parole law has been working some havoc because of the large number of unprepared-for releases. In Louisiana and Maryland parole laws were passed, which make all first timers in the prisons eligible, except those committed for arson and other felonies. An interesting provision in the former law is that in case of sickness, etc., paroled convicts may return to the prison for treatment and shelter. In Massachusetts, Commissioner Randall has proposed a parole law. In Virginia the parole law was declared unconstitutional.

Excellent reports have been made of the benefits and progress of probation from Indianapolis, from Massachusetts and from New York State. Legislation to introduce probation was attempted in Alabama. The "Big Brother" and "Big Sister" movements also have been gaining rapidly as adjuncts of probation.

Only one state, Louisiana, has passed a law for indeterminate sentence during the year. Attempts and proposals have been made also in Alabama, Massachusetts and Rhode Island.

Personnel.—Several important changes have occurred in the personnel of institution heads. Miss Katherine B. Davis, former superintendent of the New York State Reformatory for Women at Bedford, became Commissioner of Correction in the City of New York on Jan. 1, 1914. Thomas Mott Osborne, after a voluntary incarceration in 1913 in Auburn Prison, and the establishment of self-government there, has accepted the warden-

ship of Sing Sing Prison and has appointed as his aid Charles H. Johnson, a well known social worker. Henry K. W. Scott, formerly warden of the New Hampshire State Prison, has become superintendent of the Minnesota State Reformatory at St. Cloud, and Henry Wolfer of the Minnesota State Prison has resigned.

Prison Riots and Escapes.—Serious riots and jail deliveries have taken place during the year. Many of them are attributable to the unsettled state of the transitional stage between the old, repressive prison and the modern, reformative one. In California five convicts were shot in an attempted jail escape from Folsom Prison. Riots and arson were reported from the New Jersey State Prison at Trenton, and the New York County Penitentiary in New York City, where some anarchistic agitation has helped conditions otherwise unsatisfactory. In Oklahoma seven were killed and three wounded in preventing a wholesale escape of prisoners.

Self-Government.—The introduction of self-government in the state prisons and reformatories has long been looked forward to as a powerful factor for good discipline and as an aid towards rehabilitation. Successful beginnings have been made in the Auburn State Prison of New York, where the "Mutual Welfare League" was established subsequent to Mr. Osborne's self-incarceration. The "Golden Rule Brotherhood," a similar organization in Sing Sing, soon followed. Their constitution and by-laws are now in the making, and their activities are manifold and extensive. The New Jersey Reformatory in Rahway, N. J., has also made a good start. A council elected by the inmates from various tiers is to make itself responsible for good order and discipline. Some of the articles referred to in the bibliography should be read also.

Societies.—The usual meetings of national, state and other organizations were held during the year. The proceedings of the National Prison Conference held in Washington in 1910 have appeared in five volumes, published in French. An important organization, responsible for much improvement in prison conditions, the National Committee on Prison Labor, has been reorganized and has extended its scope, as indicated by its new title, The National Committee on Prisons and Prison Labor.

Census of Penal Institutions.—A preliminary bulletin of the United States census of prisoners and juvenile delinquents for 1910, appeared during the past year. No important comparisons or correlations are contained in the bulletin. Those are to come later. The principal figures are the following: The total number of prisoners and juvenile delinquents in prisons on Jan. 1, 1910, was 136,422, as against 81,772 in 1904; commitments during the year 1910 were 493,934, as against 149,691 in 1904. While the 1910 report includes those in prison for non-payment of fines, yet this large difference will have to be accounted for in other ways.

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THE LIQUOR PROBLEM

JOHN KOREN

Production and Taxation.—The production of distilled spirits from materials other than fruits for the fiscal year ending June 30, 1914, was 136,433,749 gal., a decrease of 3,984,540 gal. as compared with the fiscal year ending June 30, 1913. Of fermented liquors, 66,105,455 bbl. were produced, equivalent to an increase of 859,901 bbl. over the last fiscal year. Spirits distilled from fruits amounted to 2,704,752 gal., showing an increase of 97,015 gal. for the year. The total receipts from the internal revenue tax on distilled liquors were $159,098,177.31, and from the tax on fermented liquors $67,081,512.45. To meet the falling off in revenue in consequence of the European War, the tax on beer has been increased 50 cents per barrel. The fluctuations in the production of distilled liquors, specifically the reduction during the last fiscal year, do not denote a diminishing consumption. The trend has rather been upward for several years. This is likewise true of beer. The consumption of intoxicating beverages generally does not bear any relation to the fact that more than half of the population lives under state or local laws prohibiting the sale of intoxicants.

Prohibition Movement.—The agitation for the suppression of the liquor traffic has reached a national stage through the submission to Congress of a constitutional amendment which would prohibit forever the manufacture, sale and importation of spirituous liquors throughout the United States (*A. Y. B.*, 1913, p. 402). The proposed amendment reached a vote in the House on Dec. 22, but though a majority of votes were cast in its favor (197 to 189), failed to receive the two-thirds necessary to have it submitted to the states for ratification (see also I, *American History*). Its introduction, however, has served to inject the question of national prohibition into state politics. In different parts of the country, of course, largely for political purposes, spokesmen of various parties have signified their allegiance to the tenet of national prohibition. Meanwhile, the efforts to place single states under prohibition continue. The legislatures of Maryland and Kentucky have rejected bills for state-wide prohibition; in Texas, the prohibitionists were defeated at the polls; and in Maine a revival of the fight over prohibition is foreshadowed in the defeat of the Republican candidate who made his campaign on the prohibition issue. On the other hand, Virginia adopted a prohibition law which goes into effect in July, 1916. An unusual feature of this law is that, although it forbids the distillation of spirits, it permits the making of wine and beer for shipment beyond the borders of the state. Thus beer and wine made in Virginia can only reach consumers within the state in a lawful manner after these articles have been shipped out of the state and then brought back. In West Virginia, state-wide prohibition became effective in July, pursuant to the vote of previous years. At the November elections the states of Arizona, Colorado, Oregon and Washington adopted prohibition. In California and Ohio prohibition was defeated.

Local Option.—The local option elections of 1914 have not brought about very notable changes. In Alabama a local-option candidate for governor

was nominated at the primary election. In South Dakota 92 cities and towns voted against, and 62 for, local prohibition. In Minnesota 446 towns declared for license and 291 against, a decrease of 29 license towns over the preceding year; but the northern part of Minnesota has been declared prohibition territory by the U. S. Supreme Court in virtue of the old Indian treaty. A rehearing of the case is expected. Michigan has added one county to the prohibition column, there now being 34 counties under no-license and 49 under license. In New York the elections of 1914 resulted in an increase of 10 full-license towns, and a decrease of two partial-license towns and eight no-license towns, as compared with 1913. This state has now 385 full-license towns, 146 partial-license towns, and 402 no-license towns.

Liquor Legislation.—Except for the usual crop of minor or strictly local acts affecting the liquor traffic, no state legislation has been enacted marking a forward step in methods of regulating the sale of intoxicants.

Judicial Decisions.—In Pennsylvania the Supreme Court has decided that under the Brooks high-license law, the judges of the License Court (quarter sessions) have complete discretion in granting or withholding liquor licenses. Thus a judge elected as a prohibitionist may, if he so chooses, refuse to issue a single license. In Idaho, the Superior Courts have ruled that a saloon is not a nuisance since it is authorized by the law, and that it cannot become a nuisance so long as it is conducted in accordance with the law. The Webb-Kenyon Act regulating the shipment of liquors into territory in which its sale is forbidden by state or local laws (*A. Y. B.*, 1913, p. 3, 400), has been declared constitutional in every state in which it has been made an issue. The material points of the transportation law of Tennessee (under prohibition), affecting orders from that state to dealers in other states, were declared unconstitutional by the state Supreme Court, thus allowing purchasers to order from outside the state any quantity desired.

VOCATIONAL EDUCATION AND GUIDANCE

ARTHUR D. DEAN

National Legislation.—By an act of Congress approved Jan. 20, 1914, the President was authorized to appoint a commission of nine members "to consider the subject of national aid for vocational education and report its findings and recommendations not later than June first." On June 1 the commission made its report to Congress after public hearings, conferences with representatives of interested bureaus of the Federal Government, examination of the results yielded by questionnaires, as well as independent study and research. The recommendations of the commission include national grants which may be given to the states for the purpose of stimulating vocational education in agriculture and the trades and industries, and are to be applied toward the cost of training teachers and toward the payment of the salaries of teachers. Only schools of less than college grade, supported and controlled by the public and designed to prepare boys and girls over 14 years of age for useful or profitable employment in the callings designated, are eligible to receive government aid. All-day, part-time, and evening schools are specified. The national grants are to be disbursed through state boards which are to be designated, created, or determined entirely by the states. A Federal board is provided for, consisting of the Postmaster-General and the Secretaries of the Interior, Agriculture, and Commerce and Labor, with the Commissioner of Education as its executive officer. (See also XXXII, *Education.*)

National Movements.—The National Society for the Promotion of Industrial Education has developed the novel idea of making its annual convention more helpful to the convention city by focusing much of the discussion on problems which concern that city, and leaving with it not only information as to conditions and possibilities, but also wide discussion and expert advice through the membership of the society and others as to the de-

velopment of industrial education. At the Richmond meeting the results of an industrial and school survey were presented. Undoubtedly it was the most thoroughgoing industrial survey ever attempted in this country and has established a precedent for such investigations.

The National Association of Corporation Schools held its first convention in Dayton, O., during the year. It is made up of representatives of 36 corporations representing a capital of over two billion dollars and having in their employ over five hundred thousand people. The purpose of the association is to provide a forum where corporation school officers may interchange experiences and work out new methods for instruction. Valuable data on the attitude of manufacturers toward school shop training within their own works as contrasted with shop training in the public schools have been published by the association. The analysis of their summary reveals beyond a doubt that the corporations are in favor of apprentice schools within their own plants, and, with a few exceptions, they do not believe the public schools can train pupils adequately for shop positions.

The committee on vocational education of the National Education Association has gathered facts and opinions and made a report on "terminology."

The U. S. Bureau of Education has attempted to clarify the meaning of terms used in literature and practice of vocational education by tabulating the several thousand reports in a questionnaire giving information with regard to vocational education in the schools of the country.

Coöperation of Employers and Employees.—The most effective vocational education will result from close connection between the industry and the school. Furthermore the problem of education for many boys will never be solved unless some way can be found of having them earn while in school. A comparatively large number of agreements have been made during the year between employers and vocational education systems. Rochester, Chicago, Pittsburgh, Buffalo, New York, Indianapolis are the most notable. The following joint agreement between the Chicago school system and the local Electrical Contractors' Association shows the trend of these trade agreements.

> It shall be compulsory upon apprentices to attend school at least one-half day each week during the school term, and the employer will pay apprentice for such time up to $1.00 per week. The union shall furnish the apprentices with necessary text-books free of charge and shall also provide each apprentice with a card which must be presented to the instructor at the school and signed by him each week to show that apprentice was in attendance, and this must be shown by the apprentice to the foreman or employer on request.

Other Significant Reports. — The Royal Commission on Industrial Training and Technical Education in Canada has submitted one of the most elaborate and thoroughgoing reports on vocational education which has ever been issued. It will have an important effect upon vocational training in the United States. The Commission received testimony from 1,470 men and women, held 174 sessions and presented a report of twenty-five hundred pages covering information and recommendations gathered from all parts of the world where vocational and technical training is in operation.

The vocational-education survey of the Public Education Association of New York City has issued its report on vocational guidance. It includes an accurate study of the important questions relating to industrial education. It shows why children leave school; the nature of the work which they take up after they have left; the wages earned; the opportunities for advancement; the home conditions under which they live before leaving and after going to work. It recommends better and further elementary education; no trade training until 16 years of age; that public schools do not find jobs for children under 16, since work which children do between 14 and 16 is generally uneducative; that education make special provisions for the needs of adolescent children.

The Russell Sage Foundation has made a significant investigation of

constant and variable occupations and their bearing upon problems of vocational education. It has helped in securing a better fact basis for thinking and acting with respect to the problems of vocational education and vocational guidance. It has covered 140 occupations and shows that certain occupations are common to all localities, while other occupations require many workers in some places and few in others.

The National Society for the Promotion of Industrial Education has made a valuable contribution on the subject of the selection and training of teachers for state-aided industrial schools for boys and men and the report issued has undoubtedly served to incorporate a new movement for training teachers in state normal schools and in emphasizing the importance of the right sort of training for such teachers. Massachusetts, Illinois, New York, Iowa, Indiana, Ohio, Missouri and California have either established departments in existing educational institutions or created new institutions for the training of teachers in the industrial arts. The geographical distribution of these institutions is significant. (See also XXXII, *Education and Educational Institutions.*)

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COÖPERATION

James Ford

Progress of the Movement.—The coöperative movement in the United States still lags far behind that of Europe. The last two years have seen some development of coöperative practice among American farmers and American consumers. More popular attention has been given to the subject of coöperative credit during the last year than to any other type of operative endeavor (see XVII, *Rural Credits*). Building and loan associations, which are coöperative in their form, and decidedly useful as institutions for the promotion of thrift, have had continuous development. Productive coöperation on the part of workmen is still negligible. Coöperative housing similarly has had no striking development in this country, though copartnership tenants' societies are being established in Billerica, Mass., Hamilton, Ont., and in Nova Scotia.

Coöperation Among Farmers.—Cooperation among farmers has grown more rapidly than coöperation among workingmen, due partly to the urgent necessity of coöperative organization for self-protection, partly to the fact that their average business ability is higher than that of the workingmen, and largely also to the propaganda, advice and assistance in organization provided by the national and state departments of agriculture and agricultural colleges. Agricultural coöperation has developed chiefly in the marketing of farmers' products. Coöperative purchasing is generally an incident in the affairs of the marketing societies. Coöperative marketing ordinarily involves coöperative picking or packing, coöperative grading or

branding, coöperative storage or coöperative shipment as well as sale through a common agency. A pamphlet published in 1914 by T. N. Carver, director of the Rural Organization Service of the U. S. Department of Agriculture, records the existence of 2,165 coöperative creameries, 336 coöperative cheese factories, and 2,020 coöperative grain elevators in the United States. The state of Minnesota leads in dairy coöperation, with 632 coöperative creameries; the state of Wisconsin in coöperative cheese factories (247), and the state of Iowa in coöperative elevators (332). Throughout the West the local societies established for the sale of grain or dairy products are federated either for educational purposes, holding annual meetings, providing instructions to shippers concerning the raising of produce, grading, packing, etc., or for the joint sale of produce through some central agency. (See also XVII, *Agriculture.*)

Distribution of Fruit and Vegetables.—Fruit and vegetable growers through the country have been organizing rapidly within the past two years. The citrous fruit growers of California probably still lead in volume of business, but remarkably efficient organizations for the sale of apples and other fruit have been established among the growers of Oregon, Washington (e. g., North Pacific Fruit Distributors, Spokane) and Colorado, for the sale of market-garden produce among truck farmers of the Atlantic seaboard states and of Louisiana. Coöperative organizations of farmers are not strictly coöperative in the European sense of the term. Voting in these associations is sometimes permitted in accordance with the number of shares of stock held, while in Europe no society is termed coöperative in which plural voting is possible. Strictly speaking, a coöperative business is one in which the voting powers of all stockholders are equal and in which profits are distributed not according to investment but according to service. The spirit of American agricultural coöperators is, on the whole, quite commerical. Interest in the dollars which may be saved is stronger than the interest in the general welfare of the group. To some extent the propaganda of the state departments is responsible for the commercial spirit which actuates these organizations. The idealism of the European coöperative movement is not sufficiently appreciated by coöperative organizers in this country and frequently no attempt is made to influence coöperators to look beyond the immediate profit of their purchase or sale. But there are notable exceptions to this rule. Many farmers' coöperative societies are impregnated with the spirit of brotherhood and are working wholeheartedly for the general welfare both of the farmer class and of the nation at large. The reports and personal influence of members of President Taft's American Commission to study European coöperation have served to introduce a leaven of idealism in American coöperation.

Coöperation of Consumers.—Consumers' coöperation in the United States has displayed a slight increase in quantity and quality during the past two years. The older coöperative federations of Minnesota and California continue their activities. The Right Relationship League (established 1906, Minneapolis), which is primarily a body for organizing new coöperative societies, educating coöperators and supervising their business, now affiliates nearly 200 local stores. It has unquestionably exerted an important influence upon coöperative organization in the Middle West and indeed through its journal *Coöperation* upon the movement throughout the country.

The Rochdale stores in California, Oregon and Washington are still loosely federated for educational purposes and for wholesale purchasing through the Rochdale Wholesale Co., San Francisco. Attempts have been made, however, through the Pacific Coöperative League to centralize coöperative purchasing in a manner which reduces local autonomy and robs the movement of its most important characteristic, democracy (see organ, *The Pacific Coöperator*). The Washington State Coöperative Union convened 60 associations, urban and rural, at its meeting in February, 1914. At Sioux City, the Iowa Coöperative Store Federation was organized on April 22, 1914, by 15 local

Rochdale societies. The New York State Bureau of Coöperation held a general coöperative conference at Utica on July 22, 1914. Five of the 50 delegates represented consumers' societies. At the second National Conference on Marketing and Farm Credits (April, 1914) a committee was established to study and federate the coöperative enterprises in the United States.

Labor Groups.—Organized labor has not yet become convinced of the desirability of coöperative organization for the purchase of goods. There are, however, some notable local examples of coöperative organization stimulated by trade unions (Indiana, Illinois, Michigan). The National Socialist Party of America is waking up to the usefulness of coöperative organization both as a means of increasing financial resources available for constructive socialistic uses and as a means also of training the rank and file of socialists in business methods and in the management of industries. The Socialist Convention of the year 1912 established a sub-committee (W. R. Gaylord, Milwaukee) to study the existing coöperative societies of America, their methods and problems and the reasons for their success or failure. The subcommittee was not, however, amply financed and has been handicapped thereby in its report, which will apparently be far from complete. It is significant, however, that American societies are beginning to recognize the utility of coöperative organization as a means of training workingmen of democratic interests and sympathies for the management of the ultimate socialist state.

A coöperative movement has been developing through the past two years in New York State and vicinity under the direction of Albert Sonnichsen (Coytesville, N. J.) and associates. A convention was held by this group on Oct. 12, 1914, and there were present 36 delegates representing 16 active societies with a total membership of somewhat under 3,000 persons. Representatives came to this conference from New York, New Jersey, Pennsylvania and Rhode Island. This meeting resulted in permanent organization for annual conferences and in the establishment of a committee to study ways and means of organizing for wholesale purchase. The organ of this New York movement is *The Coöperative Consumer*, published at 567 13th Street, West New York, N. J. Some less radical coöperative societies of New York are affiliated with the Coöperative Wholesale Society of New York City, which was founded in 1913 by individuals of wealth to stimulate local retail coöperative organizations and to facilitate local retail societies in purchasing goods.

Sporadic Coöperation.—Outside of the coöperative centers consumers' cooperation shows little vitality. There are a few prosperous local retail societies scattered throughout the country. New societies are constantly being formed, usually unaware of the existence of any general coöperative movement, lacking in experience, failing ordinarily because at the crucial moment advice or funds are lacking. Centralization of the movements could largely obviate these difficulties. Recent European immigrants in New England and the Middle States establish coöperative societies very frequently, some of which succeed, but most of which never show much vitality and fail after a brief existence.

Fraudulent Companies. — America has had during the last two years its usual crop of spurious coöperative movements which tend in the long run to hurt democratic coöperation of the Rochdale type. Some of these have been based upon the good but misguided intentions of their founders; others were fraudulent. Financial losses to consumers from investment in these organizations which parade under the name "coöperative" but which are not strictly coöperative in character tend to keep alive a popular suspicion of all movements, good or bad, operating under this name, which handicaps the organizers of purely coöperative ventures.

Coöperative Legislation. — During the past two years a number of attempts have been made to safeguard the movement by devising special legislation for corporations bearing the title "coöperative." Special incorporation laws for coöperative societies have been passed in this period in Washington, Wisconsin, Michigan,

Oregon and New York. Of these the Wisconsin law is, on the whole, the best and for the present may serve as a model for legislation in other states. (See also XVII, *Rural Credits.*)

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"The Farmers' Coöperative Exchange." (Amherst, Mass., 1914.)—A bulletin published by the extension service of the Massachusetts Agricultural College. Written by Alexander E. Cance.

FORD, James.—*Coöperation in New England, Urban and Rural.* (New York, Survey Associates, Inc., 1913.)—Deals with coöperative principles and with urban and rural coöperation.

HERRICK, Myron T., and INGALLS, R.—*Rural Credits.* (New York, Appletons, 1914.)—Discusses the principles of coöperation and describes their application to agricultural credit in Europe and America.

"Marketing and Farm Credits." (Chicago, Coöperating Farm Papers, 1913.)—Proceedings of the first National Conference on Marketing and Farm Credits, Chicago, April 8, 9, and 10, 1913. The proceedings of the second conference will contain papers on consumers' coöperation as well as on coöperative credit.

The Pacific Coöperator. (San Francisco.)—Monthly magazine of the Pacific Coöperative League.

POWELL, George Harold.—*Coöperation in Agriculture.* (New York, Macmillan Co., 1913.)—Especially important as a guide to efficient business methods for farmers' coöperative societies.

SOCIALISM

CARL D. THOMPSON

General Survey of the Movement.—The year has witnessed the usual steady advance of the socialist movement, both in membership and increased political power. The total membership of the party in the 27 different nations increased from 2,753,000 to 2,896,000, a gain of about 143,000 for the year. Meanwhile the vote has increased from 10,627,125 to 11,701,211, a gain of over a million votes. The number of representatives in the national parliaments of the world has increased since 1913 from 650 to 856, a gain of 206 seats.

The International Socialist Congress was to have met in August in Vienna. The war interfered and it was adjourned to meet in Paris instead. But just as the delegates from the various nations were starting for the Congress, the war spread to France, and it was abandoned entirely.

The Congress promised to be of unusual interest, not only because of the growing power and determination of the socialist movement to intervene in the interests of international disarmament and peace, but also because of a number of vital social problems that were on the agenda. Four commissions had been appointed to prepare and submit reports to the Congress as a basis for the discussions and action there. The commissions prepared their reports, which have been submitted in pamphlet form to the party organizations, but there the work was arrested by the war. The subjects were (1) unemployment, (2) the cost of living, (3) imperialism and arbitration, and (4) alcoholism.

The American Socialist Party has joined with the Socialist parties of Norway, Sweden, Italy, Denmark, Holland and Switzerland, in a call for an international conference of the socialists of neutral nations which will convene in Copenhagen on Jan. 15, 1915.

Germany.—The famous "red week" of the German socialists was held in March. During that week an aggressive campaign was made by the so-

cialists in every city, town and hamlet in the country for new members. In Hamburg alone 10,000 new members were secured, and everywhere remarkable additions were made. A great increase of women membership is also reported. There are now 130,000 women members of the party.

France.—The tendency to unity and the harmonizing of the various socialist tendencies and party organizations has been very strong in France during the year. At the convention held in Amiens in January the spirit of united purpose prevailed and a new strength was developed in the movement. The results were shown in the elections that followed. The socialist vote rose from 1,110,561 in 1911 to 1,398,771 in 1914, a gain of 25 per cent.; and the representatives in the Chamber of Deputies were increased from 68 to 102. The specific measures for which the socialists fought in the campaign were the repeal of the three-years military service law, proportional representation and a graduated income tax. (See also IV, *Foreign Affairs.*)

Italy.—The Italian socialists held their congress of 1914 at Ancona and one of the peculiar features was the vote to exclude Free Masons from membership in the party. The reason given is that the masonic orders in Italy are controlled by capitalistic influences and are hostile to and undermine the socialist movement.

A general strike occurred in June in which nearly 2,000,000 workingmen were involved. When the war agitation began, the socialists took very vigorous action against it, threatening revolution if the Government entered the war with the Triple Alliance. It is believed that this action has been strongly influential for holding Italy out of the struggle.

Russia. — The year has been a troubled one in the labor world of Russia. Severe strikes have occurred, especially the struggle at Baku against the fearful housing conditions and the land system and for the eight-hour day. In July a general strike occurred in St. Petersburg in which 200,000 working people were involved. The struggle lasted for several days. On July 22 and 23 open fighting occurred, the streets were barricaded, and many were killed and wounded. On account of the rigid censorship and the turbulent conditions, it is almost impossible to compile statistics of either the political or the labor movement. At the last reports, the party had 168,000 membership, and 14 representatives in the Duma.

Sweden.—The election in September showed an increase of 57,000 in the socialist vote. The representation of the party increased from 73 to 87. This gives the Socialist party the largest number of representatives of any party in Sweden. The representation in the Rigsdag, which corresponds to our House of Representatives, is divided as follows: Socialists, 87; Conservatives, 86; Liberals, 57. In the First Chamber, which corresponds to our Senate, the Socialists now have 14 members, the Liberals 47, and the Conservatives 89. The immediate issue was, in the campaign as everywhere in Europe, militarism, and the cry of the king for more armament in order to be prepared to defend the nation against Russia. (See also IV, *Foreign Affairs.*)

The proposal to disassociate the Socialist party and the trades union membership was rejected by the party's committee on the subject. The Socialist party was originally established as the party of the trades unions and has so remained. Membership in the unions involves also membership in the party, with only a few exceptions.

England.—The unity conference held early in the year brought together into much closer unity and coöperation than ever before the forces of the Independent Labor party and the British Socialist party. The vote has increased somewhat and one additional seat has been won in Parliament. The fierce struggle of the laborers in South Africa stirred the labor and socialist organizations not only of England but of the whole continent as well. The trouble arose over the effort of the Government of South Africa to reduce expenses in the railway service by cutting wages and discharging a number of employees. Several of the leaders were deported to England. (See also IV, *Foreign Affairs.*)

United States.—The annual meeting of the national committee of the Socialist party was held in Chicago in May. The general condition of the party remains about the same as in 1913, with a slight decrease in the membership and in the number of official positions held by the party.

The fall campaigns show a gain in the political field, especially legislative. One Congressman has been elected from New York, and 31 representatives to the various state legislatures. This is a gain of 10 over 1912, besides the seat in Congress.

Probably the most significant feature of the party activities of the year is the establishment for the first time of a party-owned weekly newspaper, which serves as the official organ. It is published at the national headquarters at 803 West Madison St., Chicago, and is known as *The American Socialist*.

Socialism and the War.—The supreme issue in the socialist movement of all nations during the year has been the question of militarism and war. Throughout the year of 1913 and up to the time of the actual outbreak of the war, every national organization of the party kept up an incessant campaign against militarism and did its utmost to hold the respective nations back from the catastrophe.

In Germany up to the very day of the declaration of war, the Social-Democrats conducted a vigorous anti-war campaign. Hundreds of mass meetings were held throughout the country; the socialist papers everywhere warned the people against the dangers ahead and pleaded for peace. On the night of July 28, some 50 anti-war meetings were held in Berlin alone. However, in spite of their many years of anti-war agitation and their well-known anti-war principles, at the last moment the Social-Democrats in the Reichstag voted for the war budget on the ground that the war was one of defense. The action, however, does not seem to have been unanimous, a strong minority standing out against it. Probably no action that has ever been taken by the German Social-Democracy has so greatly surprised and deeply disappointed the rest of the socialists of the world.

In Austria millions of the working people fought against the war to the end. Their papers were censored and suppressed. Their meetings were dispersed. At the last moment, on July 25, they sent a message to their comrades in Germany urging peace, disclaiming all responsibility for the war and declaring their unity with the workers of all the world, and not the least with the Social-Democrats of Servia.

In France, the anti-war agitation reached such dimensions and intensity that it resulted in the assassination of Jean Jaurés, one of the most talented and effective leaders of the socialist movement of Europe. Up to the time of the declaration of war, the socialists of France fought consistently against it. But once the war opened and the German armies were crossing the borders, they rushed to the defense of their country. Jules Guesde and Marcel Sembat accepted positions in the Cabinet and the socialists generally are loyally supporting the allied forces.

In England the socialists opposed the war steadily and continue to do so. On Aug. 2, 15,000 people assembled in Trafalgar Square, denounced the Government's attitude and protested against the war.

In Russia, the anti-war demonstrations culminated in the refusal of the socialist group in the Duma to vote for the budget, after which they withdrew from the Chamber.

Italy seems to have been the only nation where the socialist resistance to the war has at least the appearance of being successful. The agitation of the socialists and labor unionists was particularly strong and menacing in Italy. So far the nation has been kept out of the war.

The Belgian Socialist party was strangely enough the first, and so far has been the great, sufferer. The international headquarters of the socialist movement of the world was in Brussels. The country was suddenly attacked. Emile Vandervelde joined the Belgian Cabinet and has taken active part in the defense of the nation; the socialists generally have shared the fate of its defending army.

The International Bureau and the international organization of the

party are for the time being practically destroyed. Efforts are under way, however, for their reorganization. The headquarters have been moved to The Hague, and the socialists of the neutral countries are arranging for the conduct of its affairs.

The American socialists have been greatly concerned over the war. Anti-war and anti-militaristic meetings have been conducted throughout the nation and millions of pieces of anti-war literature distributed. A specially called joint meeting of the national executive committee and the campaign committee issued a call to the Socialist parties of all the leading nations, both of those at war and of those still remaining neutral, urging an extraordinary session of the International Socialist Congress to be held in Washington, D. C., for the purpose of discussing the war situation, the possibilities of bringing about peace now, and plans for preventing future wars. Such a meeting was not found to be practical, however, and the meeting of the conference at The Hague, above referred to, has taken its place.

UNEMPLOYMENT

JOHN B. ANDREWS

Employment Conditions.—From the point of view of the wage-earner seeking work, the year 1914 was the worst since the year following the financial panic of 1907. As one result the American public is at last beginning to realize that the problem of unemployment is not confined to Europe and that every able-bodied man who wants work is not always able to find it.

During the months of January and February reports from all parts of the country showed that conditions were far worse than usual. The situation on the Pacific coast was accentuated by the presence of large bodies of homeless men who had pushed on hoping for work in connection with the coming exposition. In the middle states employment agencies were unable to fill the larger part of their applications and in many cases private charitable agencies were obliged to provide special relief work. In the eastern states the distress of the other sections was repeated. New York City seems to have suffered most of all. An official of a conservative relief society estimated that there were 325,000 unemployed in the city alone, a statement which was challenged but not disproved. The Municipal Lodging House proved entirely insufficient for all those applying for shelter, and the city was obliged to press into service two public recreation piers and a city steamboat to house the overflow.

Attempts at Self-Help.—Extremely effective in rousing the public to the magnitude of the problem were certain activities of the unemployed themselves in attempting to demonstrate their need. They held numerous parades and protest meetings and made a number of demands on municipalities for work. In Seattle the "International Itinerant Workers' Union" organized a coöperative boarding-house which they called the Hotel de Gink. They obtained some food and fuel by working for it, and each member who found work helped toward the support of the rest. They also secured and carried through several contracts for clearing land. So successful was the plan that similar experiments were tried in several other western cities and in Boston.

Church Raids.—The most spectacular feature of the year's unemployment was the so-called "raid on the churches" in New York City. About 500 of the more restless among the unemployed gathered nightly in an open square in the lower part of the city to discuss the situation. Among them originated the idea of appealing to the churches for food and shelter. Several churches responded to their appeal and entertained them and in these cases the men conducted themselves irreproachably. On the evening of March 4 some 500 men went to the Roman Catholic Church of St. Alphonsus, having heard it would receive them. When they learned that shelter was refused them the men began to leave, but the attempt of a newspaper reporter to take a flash-light picture caused a small panic,

and in the ensuing confusion, detectives arrested 190 men and one woman. Several of those arrested were sentenced to short terms of imprisonment for disorderly conduct, and the leader, Frank Tannenbaum, received the sentence of a year's imprisonment in addition to a fine, for alleged unlawful assemblage.

Constructive Suggestions.—A wave of remedial effort swept over the country as locality after locality realized the seriousness of the situation. Much of this effort was put forth by private citizens and organizations whose interest was that of public-spirited citizens rather than that of workingmen directly affected. The City Clubs of New York and Philadelphia prepared programmes for study and remedial work. Chambers of commerce, notably that of Boston, gave attention to the problem. At the annual meeting of the National Association of Manufacturers in May, the question of using the influence of the association in behalf of unemployment insurance was raised.

National Conference on Unemployment.—At the crest of this wave came the first call in the United States for constructive remedial action on a large scale. The call came from the American Association for Labor Legislation in affiliation with the American Section of the International Association on Unemployment. These related organizations arranged for the first National Conference on Unemployment which was held in New York City on Feb. 27 and 28. It was attended by nearly 300 delegates from 25 states and 59 cities, whose numbers included economists, statisticians, employers, trade unionists, social workers and labor-department officials. While there was a difference of opinion as to the unusual seriousness of the situation, there was agreement as to the need of attacking not only the increased unemployment of commercial crises but also the large amount of involuntary idleness which is an ever-present menace to the industrial worker. Recognition of this latter fact and action against it by an organized body may be said to mark a new attitude in America toward the unemployment problem. The second National Conference on Unemployment was held in Philadelphia, Dec. 28 and 29.

Public Action.—Prompted in part by private constructive work were the steps taken by municipal, state and Federal governments. Municipal free employment bureaus were started in several cities, among them New York. In March also a bill passed the New York legislature establishing a very complete state system of labor exchanges. The state of Washington, through an initiated measure adopted at the election on Nov. 3, prohibited the taking of fees by private employment agencies from applicants for work. This is the first law of its kind in America. Two bills providing for a national system of labor exchanges were introduced in Congress.

Summer Improvement.—With warmer weather the problem as usual passed into a less acute stage and consequently dropped out of the foreground of public attention. The attempt of the Federal Department of Labor to acquaint the unemployed with the need for harvest hands in the West was the most noteworthy effort of the early summer. Notices of the need were posted in several thousand post offices. The success of the attempt has been questioned because no efforts were made to distribute the large numbers who responded; hence, there was an over-supply in some sections. Attempts were made there to lower wages, and some disorder resulted.

Effect of European War.—The outbreak of the great European War rendered the situation once more acute. Among the groups most affected were stevedores, sailors and longshoremen, because of the check to foreign trade, and stenographers and clerical workers in the financial districts and in importing houses, a class rarely troubled by unemployment. Since new construction work was halted, workers in the steel, cement and lumber industries suffered greatly from unemployment. A number of municipalities made such efforts to cope with the situation as the opening of free employment bureaus and the starting of new work on roads and sewers. Portland, Ore., formulated an especially comprehensive programme for providing public work and work

in clearing land during the coming winter.

The Problem and Its Solution.—The year's hard experience with this complex problem suggests certain general conclusions. (1) A real unemployment problem exists in America to-day. While certain special causes have probably intensified it in 1914, it is really ever-present. (2) This is the case largely because of the seasonal nature of many industries, which demand far larger numbers of workers at one time than at another. In order to strike at the heart of the problem, business must be increasingly regularized. (3) A complete and efficient system of public labor exchanges, accompanied by thorough government supervision of private employment agencies, is a prime necessity, the better to fit together demands for work and for workers. (4) An extension of industrial training and vocational guidance is needed to produce more capable and more adaptable workers. (5) For those then left without work, some system of insurance against the contingency is a necessity.

CHARITY

WILLIAM T. CROSS

Public Opinion and Discussion.—All nine of the major divisions of discussion at the forty-first annual meeting of the National Conference of Charities and Correction in 1914 would fall properly within this section of the YEAR BOOK. Three of the most widely-quoted addresses were upon "The County: a Challenge to Humanized Politics and Volunteer Coöperation," "Business and Philanthropy," and "The Rural Negro and the South." Some of the subjects for more technical discussion were standards of efficiency of children's charities, the so-called mothers' pensions, and methods and principles of family rehabilitation. Ten other national associations of charitable purpose met with the Conference of Charities and Correction. The *Bulletin* of the National Conference for January, 1914, describes the organization of state conferences in 31 states, one of them having been established as early as 1882. Some of them are supported by state appropriation, but most of them depend on voluntary contributions. They have in many instances become powerful bodies in respect to popular education and social legislation. State universities and even denominational colleges have likewise during the year manifested great interest in this expanding field of charitable endeavor through the service of lecturers, the circulation of specially-adapted exhibits on housing, child welfare, etc., community surveys, and the publication of bulletins. (See also *Constructive and Preventive Social Work, supra.*)

Public Supervision and Administration.—Two new supervisory boards of opposite type recently established have finished their first year of experience, the State Board of Charities and Corrections of Maine (supervisory) and the State Board of Control of Nebraska (administrative). There is a tendency with all legislatures to add continually new functions to those for which central state boards of this type were organized, and for the boards themselves to assume new duties under the broad legal provisions upon which most of them are based. During the year the state board in Colorado has undertaken supervision of the housing problem in communities, the Massachusetts board has been given supervision of lodging houses, the authority of the Michigan board has been extended in respect to children's institutions, and the Wisconsin board has been required to supervise the probation of persons committing felonies for the first time. State civil-service commissions have been organized for the certification of appointments to positions in public institutions in California and Connecticut.

The year has been noted for the rapid spread of the idea of public-welfare commissions for cities and counties. Charities commissions with extensive powers have been established in Los Angeles and Berkeley, Cal., bureaus of public welfare have been organized by special ordinance separately for Chicago and for Cook County, Ill., and a Board of Public

Welfare under city and county authority has been organized at St. Joseph, Mo. In Ohio recently adopted amendments to the constitution make possible the organization of departments of public welfare in cities, and extensive advantage has been taken of this in the adoption of new city charters.

Public Relief of the Poor.—Three factors have tended to bring back to popular attention the old question of public relief of the poor in their homes, namely, the establishment of city departments of welfare having comprehensive supervision of the poor, the increase to astounding proportions of the relief burdens on voluntary charity organization societies, being accompanied by such aggravating features as the increase of the unemployed class (see *Unemployment, supra*), and the agitation of the question of mothers' pensions from the public treasury. It will be remembered that public relief of the poor in their homes in large cities was condemned in principle many years ago. Now there is an increasing tendency to regard well regulated public administration of this kind of relief as both possible and desirable. In a few states, such as Indiana, this change of sentiment finds a well regulated public system in existence, under either the county or township unit. But in most states (Delaware, Michigan and Missouri, for example) antiquated methods are in vogue and a strong sentiment exists for improvement of the public system. In this connection the appearance of a study under the Russell Sage Foundation of public outdoor relief in Missouri and Indiana is timely.

Almshouses.—Regarding this oldest unit in the American poor relief system it is difficult to trace definite progress from year to year. Scores of new buildings have been erected by counties and towns throughout the country, and a majority of these are according to modern plans. For example, Bridgeport, Conn., has recently erected an infirmary on the cottage plan, the first of its kind in the state. Almshouse superintendents in increasing numbers are attending state meetings to discuss the requirements of their positions.

Census of Almshouses.—At the close of the year 1913 there was issued a bulletin of the U. S. Census on *Paupers in Almshouses* (Bull. 120, Dec. 13, 1913). This bulletin gives only statistical tables, a final report upon the subject with percentage analyses to be issued later. The last preceding report on this subject was for the year 1904. The number of paupers found in almshouses cannot be taken as a gauge of the extent of pauperism but rather as an indication of the extent of use of this branch of the relief system. The total number enumerated on Jan. 1, 1910, was 84,198 (57,049 males, 27,149 females). This is a ratio of 91.5[1] per 100,000 population. There has occurred a fairly regular decrease in the proportion of almshouse inmates to the general population since 1880, approximately 1.4 per 100,000 population a year. The number of admissions to almshouses during the year 1910 was 88,313 (67,195 males, 21,118 females). This would account for an actual renewal of the almshouse population annually, though of course many inmates remain less than a year and others spend there the most of a lifetime. However, in comparison with previous reports, it appears that the almshouse has become more than ever before a place of temporary support. A hopeful indication of this census report is that at no five-year period between 25 and 50 years is the number of admissions so great as just below and just above that period. In the census of 1910 2,370 children 14 years of age and under were enumerated, happily a considerable decrease in this age group. This corresponds to the increase of legal restrictions on the practice of committing children to almshouses in many states.

Mothers' Pensions.—This subject has had notable public attention. The year's experience has been characterized by a better sifting of fact from opinion than formerly and more extensive and reliable results and conclusions from the public pension schemes already established. There are still at least two distinct schools

[1] This and other comparative calculations made by the writer.

of thought, one that so-called pensions to mothers are of the nature of poor relief and should be organized as such; the other that this plan of assistance is of the nature of a pension, a proper reward of motherhood and relief from the anxieties of impending poverty, guaranteeing at the same time proper home training for children. Adding somewhat to the confusion of thought on this subject is a further division of opinion, some maintaining that this is a proper function of voluntary aid, others of public relief.

Supplementing the extensive treatment of this subject in the YEAR BOOK for 1913 (p. 407), it should be noted that a state commission in New York has been investigating the subject and that a similar study has been made in Wisconsin. In Pennsylvania $200,000 has been appropriated for a period of two years to be applied in counties accepting the plan laid down by the legislature and agreeing to appropriate an equal amount for the same purpose. The funds are to be administered by county boards consisting of not less than five nor more than seven women trustees appointed annually by the governor. Eight counties are operating under the scheme. Notable contributions to the literature of this subject during the year have been a digest of mothers' pensions laws in this country, Denmark and New Zealand by the Federal Children's Bureau, and the symposium produced at the Memphis meeting of the National Conference of Charities and Correction, setting forth the practical workings and results of mothers' pensions administration in seven states.

Organization of Voluntary Relief.—Many associated charities and voluntary relief societies come into existence every year. The list for 1914 includes Mobile, Ala., Pine Bluff and Texarkana, Ark., Connorsville, Rochester, Sullivan, Richmond and Evansville (organization for negroes), Ind., Oskaloosa, Ia., Kansas City (a federation of charities), and Hutchinson, Kan.; Corsicana, Cuero, Laredo and Houston, Tex. This list is incomplete. There has been a tendency in this field to get back to one of the original purposes of the charity organization movement, namely, the organization of community forces. Much of the recent improvement in this field has come about through the activities of the American Association of Societies for Organizing Charity, which reports for the year 18 cities assisted in organization or reorganization of voluntary charities and surveys in four cities lasting from two to eight weeks. Numerous chambers of commerce have increased the functions of their committees having charge of the endorsement of private charities appealing for funds and general schemes of civic welfare.

Disaster Relief.—A fairly complete indication of the activities of the year in this field may be given by a description of the work of the American National Red Cross, although a very great amount of work has been done both in coöperation with this organization and independently by various other bodies. An example of this is the appropriation by the legislature of Massachusetts of $100.000 to be expended by the state Board of Charity on behalf of the Salem fire sufferers.

The work of the Red Cross is best shown in summary form by an account of its expenditures, which for the year 1914 up to Oct. 1 were as follows:

Texas flood relief	$10,585.01
Relief of destitute Turks	1,009.65
Japanese famine and volcanic disaster relief	10,500.00
Relief incident to Mexican revolution	8,412.44
Newfoundland sealing disaster	5,000.00
For study of flood and famine prevention in China	2,578.00
Mississippi flood relief	5,000.00
Second Balkan War relief	18,000.00
Ohio and interior flood relief	23,465.56
Chinese river conservancy work	75,000.00
European War relief (expended and obligated for)	288,000.00
Miscellaneous minor relief	28.50
Total	$447,579.16

This does not include $1,800,000 revenue from the sale of Christmas seals, spent in the crusade against tuberculosis, nor $625,000 raised on account of the Salem fire by the Massachusetts Red Cross State Board. De-

mands in the latter part of the year not covered by the foregoing table include flood and famine suffering in central China, the earthquake in Konia province of Turkey, and suffering from continued fighting in the Acapulco section of Mexico.

The factor of chief interest in respect to the operation of this organization cannot be completely stated even for the year 1914, the activities of the American National Red Cross in European relief. Up to Nov. 9, 171 surgeons and enrolled trained nurses and vast quantities of surgical and hospital supplies had been distributed among all the warring nations, the surgeons and nurses being divided into 11 hospital units. Two of these units are in Russia, two in England, two in Germany, two in Austria-Hungary, two in France, and one in Servia. The main expedition was sent abroad on a chartered Atlantic liner. Arrangements are being made to send two additional hospital units to Servia and reinforcements of units already sent to England and France. In the first part of November $65,000 was sent to various points in Europe for the support of hospital and ambulance corps, etc., and $5,000 for the Prisoners' Bureau at Geneva, Switzerland, which is engaged in transmitting mail for wounded prisoners.

In addition to this service for wounded soldiers the Red Cross gathers new clothing for destitute women, children and other non-combatants in all countries distressed by the war, not being restricted in any sense in the distribution of relief except that contributors may designate the country in which their contributions are to be applied. Up to Dec. 28 the Red Cross had received subscriptions for war relief amounting to $425,202.14. An important development in this field has been the appointment of the Rockefeller Special Commission, composed of Ernest P. Bicknell and Wickliffe Rose, which is to visit every country involved in the war, and the announcement that the resources of the Rockefeller Foundation will be made available in part for Belgian relief. The plight of the Belgian people has aroused the sympathies of Americans to an extraordinary degree and large contributions toward their relief have been made through various agencies. The Belgian Relief Commission in New York, one of the most important of these agencies, had received up to Dec. 28 contributions amounting to $748,282.58. It was estimated at the close of the year that American contributions to Belgian relief amounted to upwards of $14,000,000.

Care of the Insane.—The year has been noted for a rapid extension of public provision for the care of the insane. Beginnings have been made on new state hospitals in several states, including California, Kansas, Maryland, Massachusetts, Ohio and Wisconsin (a hospital for the criminal insane). One of the most interesting incidents has been a state appropriation of $100,000 for a site of a metropolitan hospital in Boston. Likewise many states are enlarging the capacity of their present plants, for example, $418,000 being appropriated for new buildings at Maryland hospitals. There have been marked gains in the field of psychopathic provisions in connection with the public hospital service. The Phipps Psychiatric Clinic has been opened in Baltimore, and the Wisconsin State Board of Control has established a psychopathic institute at Mendota, near the seat of the state university. Many improvements in special equipment of public hospitals have been reported. Industrial reëducation and the value of organized recreation have been established in principle as therapeutic measures better than before, and a significant number of hospitals have adopted new features of this nature. One of the most hopeful gains has been the increase in influence of the mental hygiene movement (see *Social and Mental Hygiene, supra*). Following the display at various points of an exhibit by the National Committee for Mental Hygiene, a number of state associations have been formed, and the new idea of organized effort to prevent and restrict insanity is spreading. The national committee itself has recently undertaken extensive surveys in Connecticut and Pennsylvania, with the intention of performing a similar service in other states.

Census of the Insane.—The important facts regarding the insane have

been revealed more completely than ever before by the 1910 census of insane in institutions (Dec. 13, 1913, Bull. 119, *Insane and Feeble-Minded in Institutions*). The enumeration of Jan. 1, 1910, shows that there were 187,791 patients in special institutions (98,695 male and 89,096 female). This was an increase of 25.1 per cent.[1] since the enumeration of Dec. 31, 1903, six years. This fact gives statistical support to the appeal everywhere made for the enlargement of public hospitals. Although great improvements have been made recently in special treatment of acute, hopeful cases, the statistics indicate that these hospitals remain as much as ever places for permanent custodial care, the ratio of admissions to total population being even slightly less than six years before, 24.4 per cent. The number of admissions during 1910 was 60,769. Reassurance rather than alarm should follow reading of the census returns in respect to the ratio of insane to the general population, in 1904, 186.2 per 100,000; in 1910, 204.2. This has been accompanied by a decrease of insane in almshouses by almost two-thirds, the number being 2,857 in 1910. The ratio to the general population thus shown would be still much greater than formerly, but it must be remembered that special care is being given cases which in the past would not have been placed in custody. The present census returns cover 367 institutions (251 public and 116 private) as against 328 six years ago. Many new tables are given, such, for example, as those from which the following facts may be gleaned: Only about two-fifths of the present inmates have been receiving treatment less than five years. About two-thirds of those admitted in 1910 were committed for the first time; 43.3 per cent. of those admitted during 1910 had been suffering from their present attack six months or less. Valuable tables on other subjects are included, for example, as to causes of death, 12.9 per cent. of all deaths in institutions for the insane being found to have occurred from tuberculosis of the lungs, whereas the similar figure for the general population of the United States in the year 1910 would be 9.1 per cent.

Care of the Feeble-Minded.—The year has been replete with evidences of the growing importance in the public mind of provision for the feeble-minded. Articles in popular journals on feeble-mindedness are becoming common, and trained workers from institutions have been given, in several instances, wide scope to apply their deductions practically in connection with courts, penal institutions and new colonies. The extensive organization of special schools in cities has helped define the community problem, to give the institution for the feeble-minded a more specialized task, and to increase popular coöperation. Hence, as might be expected, this development has been reflected in legislation: (1) in respect to surveys by public commissions and other bodies to determine more accurately the extent of feeble-mindedness, for example, in Missouri, New Jersey and Virginia, and (2) in the enlargement of institution facilities such as has taken place in Maryland, Missouri, New Jersey (two farm colonies privately financed), Pennsylvania (site selected for a new institution, existing one enlarged and $200,000 appropriated to a county institution), Virginia (colony for colored feeble-minded established), and Wisconsin (a new institution).

Census of the Feeble-Minded.—The most helpful single addition to our knowledge in this field during the year is contained in Census Bull. 119, *Insane and Feeble-Minded in Institutions*, issued Dec. 13, 1913. The statistics given are for the year 1910, the feeble-minded inmates of 63 institutions being enumerated, 35 public and 28 private. This indicates an increase of 50 per cent. in the number of special institutions for the feeble-minded since the last study in 1904. The enumeration shows there were 20,731 feeble-minded inmates of institutions on Jan. 1, 1910 (11,015 males and 9,716 females), an increase of 44.5 per cent. in the aggregate in six years. There has been a notable tendency to accumulation of feeble-minded persons in these institutions, most-

[1] This and other comparative calculations made by the writer.

ly custodial in character. This, with a rapidly increasing rate of admissions (3,825 were admitted in 1910) gives much hope of an extensive segregation of this class in institutions. The present report is essentially one on institutional provisions, as shown by the fact that few feeble-minded persons were enumerated for many populous states. Four-fifths of the entire number enumerated were found in institutions of the following 11 states, the list being given in the order of number of inmates shown by the returns: New York, Pennsylvania, Ohio, Massachusetts, Illinois, Minnesota, Iowa, Indiana, Wisconsin, Michigan, California; 3,421 were enumerated for New York and 854 for California. A good indicator of the fact that the burden of feeble-mindedness is a public one is the census showing that 83 per cent. of all cases enumerated were being supported at public expense. The fact that the census report on almshouses indicates a decrease of the feeble-minded in almshouses in six years from 16,551 to 9,813 corresponds with the present theory that this class should be segregated in special institutions. The present report emphasizes the meagerness of knowledge on an important point respecting public policy, namely the extent of feeble-mindedness in the general population, a beginning in this direction in the census of 1880 not having been continued. There are varying estimates tending to place the ratio of feeble-minded above that of the insane. Special studies recently, as in Burlington County, New Jersey, reveal the existence of large, menacing groups. Hence great interest attaches to the proposed plan of a state commission in New York to survey completely large representative areas.

Care of the Epileptic.—It is encouraging to note that many states have not been blind to the needs of this class. Connecticut has opened a colony with a capacity of 80. In Illinois a colony school is being established on a tract of 1,100 acres. In Iowa land has been acquired for a state colony. In New Hampshire the state school for epileptics is being enlarged, and in Virginia a new building has been added to the colony.

The Blind.—The year's progress has been most notable in respect to the treatment of the problem of the blind apart from the now well established school system for blind children, especially in respect to trade schools and workshops for the adult blind and supervision through field agents. Trade schools and workshops have been opened at Berkeley, Cal., St. Louis and Memphis. Studies of the blind population, with a view to similar development, have been carried on in New Hampshire, North Carolina and Washington. An interesting development has taken place in Kentucky, where, following preliminary investigation by a private society, the U. S. Public Health Service has conducted clinics for the treatment of trachoma in Knott County, and has established three hospitals for the same purpose, more recently undertaking an investigation of the causes of blindness.

XVI. LABOR AND LABOR LEGISLATION

LABOR

JOHN B. ANDREWS

TRADE DISPUTES

The Strike Record.—The number of strikes in 1914 was considerably less than in 1913, probably because the business depression and increased unemployment created a situation unfavorable to an increased demand by the workers. Among this smaller number, however, certain disputes attracted national attention on account of the bitterness displayed by both sides, the disorders, and the alleged commission of illegal acts in the interests of law and order.

The Michigan Strike.—A bitter strike which was begun in the summer of 1913 in the copper mines of upper Michigan lasted until April, 1914. The chief issue involved was the recognition of the union, the Western Federation of Miners. The men contended for the right to bargain collectively through their organization as to changes in working conditions, while the operators characterized the union as a lawless one, with which they would have no dealings, directly or indirectly.

The strike was accompanied by the usual unfortunate features of many such disputes in isolated communities dominated industrially, politically and socially by a single business interest and inhabited largely by the foreign-born. Cases of violence necessitated the calling in of the militia, and the strikers charged that certain armed mine guards, brought in from the East by the companies, joined it, and that it was used in an attempt to break the strike and not impartially to preserve law and order. They also maintained that in some cases the courts were unduly favorable to the mine owners. At the end of 1913, Moyer, the president of the Western Federation of Miners, who was in charge of the strike, was, it was alleged, forcibly driven out of the strike region. The violence and charges of illegal acts on both sides so roused public feeling that, following the precedent set in the West Virginia strike of 1913 (*A. Y. B.*, 1913, p. 414), on Jan. 29 the House of Representatives passed a resolution ordering an investigation by its committee on mines and mining. At about this same time an attempt at mediation by the Federal Department of Labor was accepted by the strikers but refused by the operators. The mine owners had posted notices that certain reductions in hours and wage increases would be made on Jan. 1, and a few at a time, the men gradually went back to work. In April they voted to discontinue the strike. The miners were taken back only on condition that they give up union membership and promise to remain non-union.

The Colorado Strike.—A strike of coal-miners in southern Colorado attracted national attention in April when the shooting of 19 persons, the majority women and children, by the militia, revealed the fact that nothing less than a state of civil war existed in the strike region. The strike had been begun in September, 1913, and in many aspects bore a likeness to the Michigan copper strike. They were both carried on among a population largely foreign-born, in isolated communities dominated by the mining companies politically and socially. In both the fundamental issue was the recognition of the union, in this case the United Mine Workers of America. In Colorado the other demands in-

cluded an increase in wages and the enforcement of various state laws relating to mining conditions, which, the strikers charged, were not observed by the operators. Soon after the beginning of the strike the state militia were sent to the scene of the trouble and martial law was declared. The strikers complained that mine guards were enrolled in the militia and that it was not used impartially to preserve law and order, but rather to break up the strike. There were many acts of violence on both sides. At the end of November, 1913, a conference between the two sides failed to bring an agreement, splitting on the question of the recognition of the union. In December, 1913, a Federal grand jury indicted many of the union officials for violating the anti-trust law by seeking to create a monopoly of labor. The jury also found, however, that the coal companies had violated the state mining laws. An investigation of the strike was voted by the House of Representatives on Jan. 29, in connection with the similar study of lawlessness in Michigan.

When the dispute began in Colorado the strikers with their families had moved out from the company houses to tent colonies on land leased by the United Mine Workers. One of the largest of these was at Ludlow. On April 20, in a battle with the strikers, the militia had fired into this tent colony, the tents were burned, and from bullets and fire together six men, two women and 11 children were killed, the women and children being suffocated in pits underneath the burning tents. Each side claimed that the attack had been begun by the other, and the militia charged that the strikers had deliberately used the tent colony for cover for their attack. Public concern was manifested in many ways. President Wilson sent a representative to John D. Rockefeller, Jr., who controlled the largest of the coal companies involved, urging that he submit the dispute to arbitration. Mr. Rockefeller refused. His position was that nine-tenths of the men were opposed to the strike, which he declared was really fomented by eastern agitators, and that if the union was recognized it would demand the right to say what men should or should not work, which would be an invasion of American liberty. Following Mr. Rockefeller's refusal to arbitrate, President Wilson acceded to the request of the Governor of Colorado and sent in 2,000 Federal troops to restore peace. The soldiers disarmed both the strikers and the mine guards and deported all strike breakers who had been brought in after April 20. The militia withdrew when the Federal troops took control. Thus quiet was maintained during the summer.

In early September, President Wilson proposed a "three-year truce" so that the Federal troops could be withdrawn. All miners not guilty of violence were to be taken back to work; all mining and labor laws were to be observed; neither union nor non-union workers were to be threatened. The miners at each mine were to elect a grievance committee to confer with the officials when necessary. Any difficulties not settled by these committees were to be taken up by a commission of three, appointed by the President himself and representing each side and the public. The decisions of this commission were to be final. The striking miners voted to accept this plan, but the mine operators refused. They objected mainly to being required to reëmploy all those on strike, which in the existing conditions in the industry would compel them to displace some of their employees who had remained at work during the strike, and to employ certain strikers now under indictment, but not yet tried; they objected also to the creation of grievance committees, and to the final settlement of disputes by the outside authority of a commission. Early in December President Wilson appointed another commission to settle future labor disputes in the Colorado mines. The members included Seth Low of New York City, representing the public, Charles W. Mills of Philadelphia, as a representative of the operators, and Patrick Gilday of Clearfield, Pennsylvania, District President of the United Mine Workers, for the miners. On Dec. 8 the union involved voted to call off the strike, and on Dec. 30 part of the Federal troops were ordered withdrawn.

Minor Disputes.—Another intervention of Federal troops in a labor dispute took place in Arkansas in the Hartford Valley district in early November. A strike occurred in certain coal mines which were involved in bankruptcy proceedings and were being operated by a receiver. The business was thus in charge of the Federal courts, and when the strikers made attempts to injure the property, the affair came immediately under the jurisdiction of the Federal authorities. President Wilson, therefore, sent in troops to force the observance of the orders of the court.

A strike on the Delaware and Hudson railroad in January involved all the employees except the office force and the shop men, lasted a single day during which time the movement of traffic was entirely stopped, and ended in the management's agreement to the demands of the men. The question at issue was the reinstatement of a conductor and an engineer who the Brotherhoods claimed had been unjustly discharged.

But one noteworthy strike was carried on under the auspices of the Industrial Workers of the World during the year. This one took place in the Pittsburgh district and the Westinghouse Electric and Manufacturing Co. was the principal firm involved. The strike was caused by the introduction of the premium and bonus system of payment. A prevailing belief in the principle that the worker is entitled to all the returns of industry also increased the discontent of the workers. The business depression made it easy to obtain men to take the strikers' places and the strike failed.

A strike of the employees of the Fulton Bag and Cotton Mills in Atlanta, Ga., pending at the end of the year, marks "the first effective organization of labor among southern textile workers." Unlike the former memorable textile strikes, this one is being carried on by the United Textile Workers of America, which is affiliated with the American Federation of Labor, and not by the Industrial Workers of the World. The strikers' demands include not only a substantial increase in wages and the reinstatement of those discharged because they were union members, but also a 54-hour week for all women and minors and the discharge of all children under 14.

A strike carried on by most of the employees of a large Chicago restaurant during the winter of 1914 brought out a court definition of what constitutes "peaceful picketing." It was claimed that the police made many arrests among the strikers for doing what was legalized by Illinois statute. Each side sought an injunction against the other. The judge ruled against any speaking to strike breakers while on picket duty as "tending to intimidate," but allowed the publishing and distribution of printed matter.

The peaceful state of the garment trades in New York City, in contrast to the former incessant disturbances, again demonstrated the efficacy of the "protocol" (*A. Y. B.*, 1913, p. 417). The only strike was that of the workers on children's dresses in non-union shops, and its aim was to bring standards of hours and wages up to "protocol conditions."

A strike of 3,000 coal-barge captains in New York harbor presented unusual elements. These men bring the city's coal supply from the Jersey railroad terminals. They obtained an increase in wages from $40 to $60 a month, claiming that with this increase they could afford to have their families live on shore instead of on the barges, where the children had no chance to go to school.

In Stockton, Cal., the Merchants', Manufacturers' and Employers' Association tried to carry on an "open-shop lockout." They locked out their union workmen and pledged themselves not to use the union label, not to increase existing wages or shorten hours and not to make any agreements with labor organizations.

Dull business and the disturbed industrial conditions produced by the European War made the latter part of 1914 an unfavorable time for demands from wage-earners for improved conditions, and consequently few important labor disputes were begun during the latter part of the year.

Boycotts and Blacklists.—The heavy damage verdict against the Hatters' Union for boycotting the makers of

"Danbury hats" in connection with a strike against D. E. Loewe & Co. was once more affirmed, on Dec. 18, 1913, and once more appealed by the unions to the U. S. Supreme Court. This case has been in the courts since 1903 (*A. Y. B.*, 1911, p. 352; 1912, p. 400).

After seven years of litigation the contempt case against Messrs. Gompers, Mitchell and Morrison, chief officials of the American Federation of Labor, was finally settled by the U. S. Supreme Court. In brief, the course of the case has been as follows (*A. Y. B.*, 1911, p. 351; 1912, p. 400): The name of the Bucks Stove and Range Co. had been placed on the "We don't patronize" list of the *Federationist*, the official organ of the American Federation of Labor. A sweeping injunction was issued to prevent this boycott, which was deliberately disobeyed, as the Federation believed it illegal. The trial of Mitchell, Morrison and Gompers for contempt of court then followed and heavy sentences were imposed. Appeals and retrials ensued, till the last verdict of the U. S. Supreme Court ended the litigation. The verdict, however, was a disappointment in that no principles were enunciated, but the sentences of the lower courts were reversed on account of the statute of limitations. The Court found that the chief alleged contempts had been committed more than three years before the date of bringing the action.

The Allied Printing Trades Council of New York City, a federation of all the local unions in any way connected with the printing business, was involved during the year in a series of legal proceedings having to do with the legality of the boycott. Among these allied trades it is the custom to refuse to handle any work done by non-unionists. For instance, union binders will not work on books printed by non-unionists or plates engraved in a non-union shop. A warning was sent to union members in another state not to handle such "non-union" engravings. Interstate commerce was thus involved, one of the firms complained, and a Federal grand jury made an investigation in February, but found no violation of the anti-trust law in this action. Next the opinion of the Attorney-General of the United States was asked. In March he rendered it as follows. The combination of the unions into the Allied Printing Trades Council was legal. The "political boycott" it carried on was also legal. In this political boycott the unions warned publishers of schoolbooks who have work done on them by non-union firms that appeals will be made to boards of education not to purchase such books. But it is pointed out in the opinion that any secondary commercial boycott, such as was tried in the Danbury Hatters' Case, is entirely illegal. This exists when union members threaten not to make purchases from a bookseller because he carries in stock books printed by non-union houses. One of the firms affected, an engraving company, then turned to state action, sought to enjoin the Council, brought a civil suit for $50,000 damages and also started criminal proceedings. The injunction was denied (Gill Engraving Co. *v.* Doerr, U. S. D. C., 214 Fed., p. 111), however, and the firm then came to an agreement with the union, so that the other two actions were dropped.

A similar affirmation of the right of organized labor to take action against the use of non-union material by union men was won by the refusal of the New York Circuit Court of Appeals to issue an injunction in the so-called "Paine Case" against the United Brotherhood of Carpenters and Joiners (Paine Lumber Co. *v.* Neal, U. S. C. C. A., 214 Fed., p. 82). This was a case where union activities prevented an open-shop firm from selling its non-union made trim for buildings in New York City.

Arbitration and Conciliation.—The seriousness of certain recent labor disputes, notably those in Lawrence, Paterson, West Virginia, Michigan, and Colorado, and the failure of attempts at mediation have increased public interest in more effective methods for peaceful settlements. A visit from Justice Higgins of Australia, judge of the Commonwealth Arbitration Court, which settles all interstate trade disputes, gave a possible impetus to the cause of compulsory arbitration. He described its workings in Australia as highly satisfactory, but since such a plan involves

the restriction of strikes, it is vigorously opposed by the American Federation of Labor.

The most effective scheme for industrial peace in the United States still appears to be the protocols of the garment trades in New York City, which have brought the trade up from its former chaotic condition to one of comparative stability (*A. Y. B.*, 1913, p. 416). The protocol for the cloak, suit, and skirt industry was renewed for three years in January, 1914, after difficulties whose successful settlement served in a way to demonstrate its strength. The difficulties centered about the machinery for settling disputes. The manufacturers declined to renew the agreement unless the clerk of the union was removed, saying that they found it impossible to work with him. In the interests of harmony he resigned. Then the unions complained that it was often difficult to secure a decision on difficulties taken up by the grievance board after the clerks had failed to settle them. Such deadlocks occurred because both sides were equally represented on the board. This defect was remedied by providing that the two clerks and an impartial chairman, chosen by both parties, should constitute a Committee on Immediate Action to settle such disputes. Mr. John E. Williams of Streator, Ill., was selected as the chairman. Since this change the Board of Grievances has become simply a conference body.

The Department of Labor, as authorized in the act which established it, and the Federal Board of Mediation and Conciliation for the railways which was appointed according to the amendment to the Erdman Act in 1913 (*A. Y. B.*, 1913, p. 416) constitute at present the chief Federal agencies for arbitration and conciliation. The Secretary of Labor devoted a section of his first annual report, published in March, to this phase of the Department's activities. While his efforts failed in the two most important strikes, those in Michigan and Colorado, they were successful in a considerable number of lesser disputes during the years 1913-14.

It was only through a personal appeal to the railroad officials by President Wilson that a strike of 55,000 locomotive engineers and firemen on 98 western railroads was averted in August. The men had asked for an increase in wages and voted to strike if some agreement was not reached. Both sides were willing to have the Federal Board of Mediation and Conciliation arbitrate the question, but the railroad officials wished the Board, in addition, to settle certain disputes about the service rules, while the men were not willing to consent to this. Finally, realizing the seriousness of the situation, the officials for the sake of industrial peace agreed to the union's plan for arbitration. In September the intervention of the Board prevented a strike of nearly all classes of trainmen, locomotive engineers, firemen, conductors and brakemen on the St. Louis Southwestern Railway. The dispute arose over the alleged unjust discharge of a conductor.

Court Decisions.—The trend of judicial decisions during the year was decidedly favorable to the contentions of labor. Certain decisions concerned much disputed fields, as the legality of the boycott (see "Boycotts and Blacklists," *supra*) and the right to strike for the closed shop. As usual there was free resort to the injunction in all sorts of labor disputes. The enactment of the labor provisions of the Clayton Anti-Trust Act (see *Labor Legislation, infra*) may be expected to define more clearly the law along many of these lines and thus to furnish a guide for more consistent judicial rulings than have existed in the past.

In connection with the Clayton Bill, it may be noted that in June the U. S. Supreme Court unanimously sustained the constitutionality of a similar provision exempting combinations of labor from the Missouri anti-trust law (International Harvester Co. *v.* State of Missouri, Sup. Ct. of the U. S., June 20, 1914, 34 Sup. Ct., p. 859). It was said that labor and property have never been considered to be in the same class of rights or things, and that it is within the power of the legislature to select and classify exceptions.

A general tendency to uphold labor legislation that improves working conditions was clearly apparent in

the court decisions of the year. Among the most important is that of the Supreme Court of Oregon, the highest state court, upholding the state minimum-wage law for women and minors (*A. Y. B.*, 1913, p. 436). The case was appealed to the Supreme Court of the United States for a final decision. In New York State two important labor laws enacted in 1913 were held constitutional. The Appellate Division of the Supreme Court sustained the law forbidding night work of women in factories, thus reversing a decision in 1907 which declared a similar law unconstitutional. The law was considered to be a measure preserving health and morals. Both in this and in the minimum-wage law cases the same sort of a brief was drawn up, one emphasizing the facts of common knowledge about industrial conditions rather than the legal aspect of the legislation. The New York "one-day-rest-in-seven law" (*A. Y. B.*, 1913, p. 433), designed to insure to workers in factories and mercantile establishments a weekly day of rest, was twice sustained by court decisions during the year, and its constitutionality now seems established.

In Oklahoma the right to strike for the union shop was affirmed (Roddy *v.* United Mine Workers of Am., Okla., State Sup. Ct. Comm., Jan. 31, 1914, 139 Pac., p. 126). A non-union miner lost his place because his union fellow workmen threatened to strike unless he was discharged. He then sued the union for damages but lost his case. The judge said that any individual, in the absence of a contract, has the right to quit work whenever he pleases for any reason or for no reason at all. What may lawfully be done by any individual may be done by a combination of men.

Equally favorable to labor were the reversals of former verdicts in certain cases connected with the great 1913 strikes in Paterson and West Virginia (*A. Y. B.*, 1913, pp. 411-13). In Paterson the editor of a labor paper had been sentenced to prison for "hostility to government" because he criticized the conduct of the police during the strike. A higher court reversed this decision, saying that the law, if interpreted as in the lower court, would make it a crime to urge the election of the political party not in power and would thus abridge the freedom of the press (State *v.* Scott, N. J. Sup. Ct., April 21, 1914, 90 Atlan., p. 235). In West Virginia a higher court reversed a decision that a union *per se* was an "unlawful conspiracy" (Mitchell *v.* Hitchman Coal and Coke Co., U. S. C. C. A., June 4, 1914, 214 Fed., p. 685). Moreover, an indictment against the officials of the United Mine Workers for violating the anti-trust law by establishing a "monopoly of labor" in West Virginia was quashed at the request of the Federal District Attorney of the United States District Court, Northern District, West Virginia.

The constitutionality of the numerous laws forbidding the employment of aliens on public works was tested in a suit brought against a New York city contractor who was at work on the new subway system. A section of the state labor law forbids the employment of aliens on public works, whether done directly or by contract. The business agent of the New York City Bricklayers' and Masons' Union made a complaint of the violation of the law by the contractors to the Public Service Commission which is in charge of the work. An action to test the constitutionality of the law followed and resulted in a favorable verdict by the state Supreme Court. The case was then carried to the Appellate Division, where the decision was reversed Dec. 31.

LABOR ORGANIZATIONS

American Federation of Labor.—In the affiliated membership of the American Federation of Labor there was to be found in 1913, 72 per cent. of the union membership of the United States and Canada, according to a bulletin (No. 67) issued by the New York State Department of Labor in November. The average number of members in the Federation during 1913 was 1,996,004. On Jan. 1, 1914, the independent unions contained a total of 758,274 members, a gain of about two per cent. in the year. There were 373,339 in the independent railroad brotherhoods, 82,298 in the Brick-

layers' and Masons' Union, 83,145 in three unions of government employees, and 23,840 in the Industrial Workers of the World, while the remaining 195,652 were found scattered among 123 smaller national and local organizations. Ten small independent unions made no report of their membership.

While these figures are the latest available for the non-affiliated unions, the growth of the American Federation of Labor during most of the year 1914 is given in the report of its executive council to the thirty-fourth annual convention, held at Philadelphia, Nov. 9-21. These statistics show that the total membership for the year ending Sept. 30, 1914, had passed the two million mark and was 2,020,671, an increase of 1.2 per cent. over the 1,996,004 of the previous year. Forty-eight national and international unions had gained a total of 62,882 members, while 55 had decreased in membership, making a net gain of 24,667.

The gains in membership were almost all comparatively small but well scattered. Only one union, the Electrical Workers, gained over 5,000 members, and the increase there amounted to 8,394.

The following 29 unions made small gains in membership of less than 1,000 each:

	Gain in Membership
Broommakers	100
Brushmakers	60
Cloth Hat and Cap Makers	45
Compressed-Air Workers	260
Elevator Constructors	63
Stationary Firemen	500
Horseshoers	200
Iron and Steel Workers	500
Lace Operatives	176
Laundry Workers	800
Lithographers	259
Machine Printers and Color Mixers	4
Marble Workers	800
Meat Cutters and Butcher Workmen	520
Metal Polishers	500
Sheet-Metal Workers	400
Printers	585
Photo-Engravers	300
Plasterers	900
Post-Office Clerks	600
Quarry Workers	400
Railway Postal Clerks	416
Composition Roofers	80
Theatrical Stage Employees	700
Stereotypers and Electrotypers	165
Stonecutters	600
Stove Mounters	50
Tile Layers	200
Elastic-Goring Weavers	15

Eighteen unions gained between 1,000 and 5,000 members, as follows:

	Gain in Membership
Boot and Shoe Workers	2,428
Bakers	2,000
Barbers	1,259
Bridge and Structural Iron Workers	1,000
Carriage and Wagon Workers	1,128
Steam Engineers	2,000
Hodcarriers	3,722
Hotel and Restaurant Employees	3,792
Longshoremen	3,000
Machinists	4,338
Musicians	1,500
Plumbers	3,000
Potters	1,238
Printing Pressmen	1,600
Railway Carmen	2,247
Street Railway Employees	3,000
Teamsters	4,100
Typographers	2,938

There is a growing realization of the importance of organizing women industrial workers. The American Federation of Labor levied a special assessment for the purpose during the year. The National Women's Trade Union League, which celebrated its tenth anniversary in the spring, then found itself to be in a prosperous condition with a most hopeful outlook for the future and inaugurated at that time an important new departure, a three-months' course of training for women organizers, the demand for whom the League had been unable to meet.

The Industrial Workers of the World.—The annual convention of the Chicago or non-political branch of the Industrial Workers of the World, the section popularly associated with "I. W. W." activities, was held in Chicago in September. Fewer delegates were present than at the previous convention, indicating a decreased membership. Greater activity was urged, and the policy of sabotage was once more advocated. There were but few strikes led by the I. W. W. during the year. Leaders in the organization were prominent during the winter among the group of 500 unemployed men who went to different New York City churches night after night asking for food and shelter (see XV, *Unemployment*). Many of these men were finally arrested during one of their church "raids," and several were sentenced to prison for disorderly conduct. Their leader, Frank Tannenbaum, was imprisoned for a

year. The so-called "free-speech" fights followed as a result. These were protest meetings, held in spite of police prohibition which it was claimed could not legally be made, first against these arrests and later against Mr. Rockefeller's attitude in the Colorado strike (see "Trade Disputes," *supra*). The most prominent of the arrests and convictions which followed were those of Bouck White, a clergyman who interrupted a service in the church Mr. Rockefeller attends, to ask the minister's opinion of the Colorado troubles, and "Becky" Edelson, who carried on the first "hunger strike" in America as a protest against her imprisonment, but was finally released under bonds to keep the peace. A jury later acquitted her on another charge, that of disorderly conduct in connection with a "free-speech" demonstration in Tarrytown near Mr. Rockefeller's country home. Early in July three I. W. W. leaders were killed by the explosion of a bomb in their flat in New York City.

The Ironworkers' Dynamite Conspiracy. — Final disposition of the "dynamite cases" involving structural ironworkers (*A. Y. B.*, 1911, p. 352; 1912, p. 401) was made during the year. In January the retrial of six of those previously convicted was ordered. Four of these were set free as having had only a minor part in the conspiracy, and judicial action was deferred in the cases of two others. The other 20 convicted members of the International Union of Bridge and Structural Ironworkers began to serve their sentences in June, their appeals to the President for pardons having been denied.

Unionization of Cleveland School Teachers.—An attempt at union organization that attracted attention was that of 800 Cleveland public school teachers. Being unable to persuade the Board of Education to increase their salaries or to change certain objectionable methods of supervision, they voted to form a union affiliated with the American Federation of Labor. The Board of Education then voted not to reappoint any union members for the next school year. The teachers succeeded in securing an injunction against the enforcement of this rule. Much public feeling was aroused and a movement was started whose aim was to have the state legislature do away with the present Board of Education.

Union Rivalry in Butte.—In Butte, Mont., where the copper miners are completely unionized, a violent dispute between two factions of the union broke out during the summer of 1914. Riots took place and one man was killed. Charles H. Moyer, president of the Western Federation of Miners, who had suffered during the Michigan copper strike as an extreme radical (see "Trade Disputes," *supra*) was here attacked as too conservative and obliged to flee the town in danger of his life. The disturbance arose because the controlling element in the local union was accused of being secretly influenced by the mine operatives. A majority of the members seceded and formed a local organization, called the Butte Mine Workers Union, which was said to be under the control of the Industrial Workers of the World. The disorder continued until, on Sept. 1, the state militia was called in and martial law was declared. The president and vice-president of the newly formed union were soon arrested on the charge of deporting miners who refused to join their organization and received prison sentences for the crime. In October the county sheriff and the mayor of the city were found guilty of neglect of duty and removed from office for having made no attempt to quell the riots during the summer. Meanwhile the mine operators, who had previously bargained collectively with the Western Federation of Miners, refused to have any further dealings with either union.

Hop Pickers in California.—In February two workers implicated in the Wheatlands riot of August, 1913, were convicted of murder in the second degree and sentenced to life imprisonment. The disturbance occurred in a remote California hop field and was the outcome of its bad sanitary condition. Nearly 3,000 people, at least a third of whom were women and children, had gathered at this ranch for the hop picking. Within three days, an insufficient water supply, inadequate garbage disposal, and the absence of all proper toilet provisions

had brought about conditions which were a menace to health. A protest meeting was held on a Sunday afternoon. The owner of the ranch, fearing disorder, sent for the county officials, who tried to arrest the speakers. A deputy sheriff fired a shot into the air and thus precipitated a riot in which the district attorney, another deputy sheriff and two of the workers were killed. As a result of the outbreak the state Board of Immigration and Housing became active in the enforcement of a law regulating the sanitary conditions of labor camps. Living conditions for the workers in the California hop fields were much improved in the summer of 1914.

INDUSTRIAL INVESTIGATIONS

Federal.—The Federal Industrial Relations Commission, established to look into the causes of the industrial unrest brought prominently to public attention by the conviction of the union officials of the Structural Ironworkers for dynamiting (see "Labor Organizations," *supra*), finally began its work early in the year. A large number of public hearings were held in industrial centers all over the United States, where employers, employees and others interested in labor conditions were invited to give their opinions. On Oct. 1 it was announced that a similar investigation into the relations between labor and capital would be made by the Rockefeller Foundation on a world-wide scale without a time limit. W. L. Mackenzie King, formerly Canadian Minister of Labor, was appointed director of this inquiry.

The United States Department of Labor, organized to promote the interests of the wage-earners of the country, continued its work during the second year of its existence without many special departures from its original plan of organization, but with increased effectiveness. The Bureau of Immigration and the Bureau of Naturalization proceeded with their usual work. A larger appropriation enabled the Children's Bureau greatly to extend the scope of its efforts (see XV, *Child Welfare*). The Bureau of Labor Statistics continued its work along customary lines of activity, issuing publications in its regular series of "Wholesale Prices," "Retail Prices and Cost of Living," "Wages and Hours of Labor," "Industrial Accidents and Hygiene," "Conciliation and Arbitration" (including strikes and lockouts), "Labor Laws of the United States" (with related court decisions), "Foreign Labor Laws," etc.

State.—Many of the investigations carried on during the year in the different states were ordered by the legislatures, in order that they might have the proper knowledge on which to base adequate legislation. The growth of this practice is a hopeful sign of higher standards and more intelligent action in labor legislation.

The chief work of the New York State Factory Investigating Commission during the year was a study of women's wages in certain industries, with a view to ascertaining the need for a minimum-wage law for women and children. It has thus far reported on candy and paper-box making, finding large numbers of adult women at work in these industries at wages below any possible subsistence level. Among other states having wage-investigating commissions at work are Indiana, Michigan, Missouri and Ohio.

Two state immigration commissions made their reports during the year, the one in Massachusetts and the other in New Jersey. The conclusions drawn by the two reports were very similar. Like evils were found, resulting from our present *laissez-faire* policy toward the immigrant, and similar programmes of constructive legislation were recommended as a remedy, both reports considering the exploitation, the better distribution, and the assimilation of the immigrant. In addition the Massachusetts report took up the poor housing conditions of aliens and recommended remedial legislation. (See also XV, *Immigration.*)

A second report on "Labor Conditions in Wisconsin" has been issued by the executive committee of the Wisconsin State Federation of Labor. Information about wages, unemployment, and the cost of living for union members is given. Other similar reports are to be issued in the future. These are noteworthy as pioneer at-

tempts by a labor organization in the United States to present such facts.

SOCIAL INSURANCE

Workmen's Compensation.—During the year there has been a decided growth of interest in the principle of social insurance and a stronger feeling that widespread systems of social insurance form the next important step in social advance. It is coming more and more to be a recognized fact that the average industrial worker cannot hope to provide through his own unaided efforts for the ordinary contingencies of sickness, accident, unemployment, and old age. This interest has been marked in several ways, among others by the regular appearance of a new department called "Social Insurance" in the *Survey* magazine. Thus far this department has largely been devoted to making the extensive European experience in various forms of social insurance more familiar to Americans. The one form of social insurance which has so far been extensively developed in the United States is that of "workmen's compensation" for industrial accidents. Such legislation now exists, in more or less adequate form, in half of the 48 states, and commissions are at work investigating the question in several more. The stage of agitation for laws alone has therefore been passed and the point reached where standards can be formulated, enforcement studied and special problems considered. The Social Insurance Committee of the American Association for Labor Legislation issued a pamphlet during the summer formulating the standards necessary to an adequate law. These standards, involving scale of payment, employments to be covered, and administrative machinery, show that almost all the laws now in force require revision and strengthening. In addition to the question of sufficient payments and compulsory rather than elective laws, experience is showing the need of a special board for administration and enforcement and of proper provision for insurance to bring about certainty of payment.

One problem closely related to workmen's compensation brought to the front by the many recent ocean disasters is that of compensation for injuries to employees on the high seas and inland waters. The present law provides no compensation at all in case of death, and the liability for all property losses as well as all personal injuries to passengers and crew during any voyage is limited to the value of the ship at the end of the voyage. In connection with the other legislation for seamen urged on the present Congress (*A. Y. B.*, 1913, pp. 4, 23), it was suggested that an adequate compensation law be enacted, applying to employees in interstate commerce as well as to those at sea or on inland waters. A bill was also urged for the purpose of extending the principle of compensation on adequate lines to all employees of the Federal Government.

Occupational Diseases.—An unsettled problem arising in connection with these laws is the question of compensation for occupational diseases. Should a workman who contracts some illness from the conditions of his work be paid during the period of disability as he would be when injured by a work accident? In Massachusetts several victims of such diseases have been so compensated, and these awards have been recently upheld by the Supreme Court of the commonwealth. But in Michigan, while the Industrial Accident Board awarded compensation in the case of a death from lead poisoning, the state Supreme Court, on an appeal to it by the liability company, decided that occupational diseases did not come within the scope of the law. In Ohio it was the Industrial Board which refused to compensate a victim of lead poisoning, and in this state it was the Superior Court which reversed the verdict and awarded payment. The case then went to the Supreme Court. However, the trend is undoubtedly toward the inclusion of industrial diseases along with work accidents, either by specific amendments to the compensation laws, or by the awards of accident boards and decisions of the courts.

Sickness Insurance.—Such compensation for industrial diseases will, moreover, represent a forward step in the movement for social insurance

against sickness and invalidity. The Social Insurance Committee of the American Association for Labor Legislation, which had been working on the subject for a year and a half, declared sickness insurance, with the emphasis on medical care in order to produce a campaign of health conservation similar to the "safety-first" movement which followed accident compensation, to be "the most urgent of social-insurance problems." The Association announced that it was engaged in drafting bills for a legislative campaign for this purpose, and, during the summer, the Social Insurance Committee made a tentative announcement of its essential standards for these bills. The main provisions are (1) universal, compulsory insurance against sickness for all those below a certain level of income, including casual and home workers so far as possible, to be supported by contributions from employers, employees and the public; (2) a voluntary system as a supplement for those not under the compulsory system; (3) cash benefits, including sick benefits for a specified time, perhaps six months, invalidity benefits during disability paid from a separate fund under the same management, and adequate provision for medical attendance, medicines, nursing and hospital care; (4) benefits to be paid from mutual local funds managed by employers and employees but under government supervision, which should extend to all existing private funds; (5) the local unit for the invalidity funds to be of larger area than that for the sickness fund proper; (6) all legislation so framed as to lead to illness prevention and health improvement.

Old-Age Pensions.—Interest in still another form of social insurance, namely, old-age pensions, was manifest in Massachusetts in 1914 legislation which ordered the director of the state Bureau of Statistics, in connection with the taking of the state census in 1915, to find out the facts necessary for a proper consideration of the subject, that is, the number of persons in the state 65 years of age and over, the number of dependents in public and private institutions, and the number receiving aid from public or private charity. A similar investigation is being carried on in Wisconsin under the direction of the state Industrial Commission.

State Insurance in Wisconsin.—The Wisconsin "Life Fund" declared its first annual dividends to policy holders in the fall of 1914. This is the first American scheme by which life insurance or old age annuities may be obtained from the state. The business is confined to these two lines, and various public officials are empowered to write the policies. It is argued that the plan will have two advantages, first, a lowered cost on account of the saving in agents' salaries and expenses, and second, an increased understanding of and confidence in insurance among the people of the state. (See also XIV, *Life Insurance.*)

Group Disability Insurance.—More nearly akin to the proposed social insurance against sickness is the new "group disability insurance" of sickness and non-industrial accidents planned by one of the great insurance companies (*A. Y. B.*, 1913, p. 369). Only groups will be insured, thus reducing the cost, and this may be taken advantage of by employers, trade unions, lodges and the like. Full benefits will be paid for six months, half benefits for four and a half years more, and one-quarter benefits till the beneficiary reaches the age of 65. The last is a unique feature of the plan. It is announced that this sort of insurance will be written at cost.

SAFETY, HEALTH AND COMFORT

Safety.—Under the financial pressure brought to bear by the advance in workmen's-compensation legislation, movements looking toward greater industrial safety continued to develop during the year, and in consequence all sections of the country are becoming increasingly familiar with the slogan "safety first." The numerous conferences of the year are an indication of this fact. Early in the winter an Industrial Safety Conference was held in Nevada, a region previously little touched by the movement, under the joint auspices of the State University and the state In-

dustrial Commission. This pioneer conference was especially valuable in bringing together employers and representatives of labor and promoting the exchange of opinions between them. In September the third annual convention of the Mine Safety Association was held in New York, and the third annual congress of the National Council for Industrial Safety, which is the general, country-wide organization, took place in Chicago in October. In November occurred the second annual Pennsylvania Safety Exhibit and Conference arranged by the state Department of Labor for the information of the employers of the state. Finally the second annual Safety Exhibition of devices and provisions for industrial safety was held in New York in December under the auspices of the American Museum of Safety. New safety museums, exhibiting devices for the prevention of industrial accidents and disease, were opened in Boston and San Francisco. The latter was recommended as a means of accident prevention by the state Industrial Accident Board and established by an appropriation from the legislature.

A growth in organized safety departments in manufacturing establishments was also evident. The American Museum of Safety printed a directory of establishments known by it to have such "safety-first" organizations in adequate form. The list by no means includes all the firms carrying on this work, yet it contains the names of 41 electric-railway, light and power companies, 12 iron and steel plants, 49 steam railroads, and 52 large industrial plants, business associations and industrial safety societies. In this work great emphasis is laid on the education and coöperation of the employees. Wherever it has been carried on for any length of time a large decrease in the number of accidents and number of days lost results, amounting with certain large corporations who have kept these records to from 50 to 75 per cent.

One special phase of the safety movement in 1914 was that of several public-safety campaigns by street-railway companies. These had a two-fold aspect, aiming to reduce accidents to pedestrians as well as those to their employees and passengers. In accomplishing the first of these purposes, the corporations depended largely on coöperation with municipal departments, for instance, boards of education, and with various civic organizations.

Health.—The close relation that exists in many cases between disease and occupation is becoming increasingly a subject for study and action. Ohio is the third state in the Union to carry on a state-wide occupational disease survey. The work has been going on under the auspices of the state Board of Health and the field work has now been completed. Manufacturing industries and their processes have been classified according to the health hazard involved, and a very large number of instances of the occurrence of occupational diseases has been collected.

The United States Public Health Service has, during the year, done important work in relation to industrial hygiene, both on its own initiative and in coöperation with other organizations. Among the latter may be mentioned a sanitary survey of certain factories in Indiana, undertaken at the request of the Indiana Commission on Working Women; an extensive investigation of the sanitary conditions and physical state of the workers in the garment trade in New York City, for the Joint Board of Sanitary Control; and an investigation of the prevalence of trachoma among certain mill workers in Youngstown, asked for by the Ohio State Board of Health. An officer of the Service is acting as medical adviser and studying unhygienic industrial conditions for the Federal Commission on Industrial Relations. The Service is also investigating, in coöperation with the United States Bureau of Mines, the sanitary conditions in mines in the Pittsburgh district and in the Rocky Mountain states. It is likewise studying the prevalence of tuberculosis in relation to different industries in Cincinnati.

Besides the prevention of occupational disease, for which the standards are coming to be set by legislation, there are considerable possibilities in conserving the health of employees through physical examina-

tions. Good work in this line was done by several large firms during the year. Any defects discovered by these examinations were kept in mind in selecting occupations for the workers, and in this way the health hazard of the industry was considerably reduced for the workers.

Comfort.—Making special provisions for the comfort of employees received an impetus during the year through the growing recognition that the proper regulation of temperature and relative humidity and the removal of injurious dusts, gases and fumes add to the efficiency of the worker and are therefore to the financial interest of the employer. Reliable standards for ventilation, the lack of which has heretofore hindered progress in shop ventilation, are hoped for as the result of the work of the New York Commission on Ventilation. This is a state commission, supported, however, by a gift for the purpose from the New York Association for Improving the Condition of the Poor. Included in the work of this commission in 1914 was the bacteriological examination of many samples of air from offices and factories, for the purpose of providing a broad and accurate basis for interpreting such examinations of air.

Profit Sharing.—Interest in the principle of profit sharing between employer and employees in industrial enterprises was aroused by the extensive profit-sharing scheme announced in January by Henry Ford, the Detroit automobile manufacturer. In brief, Mr. Ford proposed to share his large profits equally with his employees. The arrangement made for the year 1914 was as follows. All employees were eligible except minors and women without dependents, and these received a considerable increase in pay. The others received $7, $6, and $5 a day, according to their hourly rate of wages, provided investigation showed them to be of good character and of saving habits. At the same time hours were reduced from ten daily, three eight-hour shifts being employed instead, and the plant being thus run continuously. Shop discipline became more rigorous and punctuality was insisted on. The plan differs from most profit-sharing schemes in that the amount of money to be given the men is fixed, not a percentage of the profits. Nor is there any possibility of acquiring stock and in that way a voice in the management of the industry, which is also a common feature of many such schemes. This "$5-day minimum wage" attracted widespread attention, while numbers of unemployed men flocked into Detroit, trying to get jobs at the Ford factory, and for a short time some disorder resulted.

Hours of Labor.—Agitation was continued in regard to shortening the hours in "continuous industries" by having three eight-hour shifts of workers in place of two twelve-hour shifts. Emphasis was laid on the increased efficiency of the workers through shorter hours and the consequent lack of increase or even reduction in the labor cost. These considerations seem to have been overlooked at the annual meeting of the United States Steel Corporation in April, when it was voted not to attempt to reduce the twelve-hour day, as recommended by the stockholders' committee of the corporation, which reported in 1912 the results of its inquiry into labor conditions. It was said at the April meeting that the men would be dissatisfied if their wages were reduced, and the company would be handicapped in competition if it made the necessary increase. This decision is particularly important because the United States Steel Corporation is the largest single employer of labor in the United States.

COST OF LIVING

Since the index of retail food prices computed by the Federal Bureau of Labor Statistics is not available for the year 1914 at the date of writing, the *Times Annalist* index number has been used as an indication of the cost of living for industrial workers during the year. This number is based on the wholesale prices of a number of articles of food "selected and arranged to represent a typical family's food budget," which item is 40 per cent. of the workingman's whole cost of living. The averages for the years from 1896, when the number reached its lowest point, through 1913, when

there was a slight decrease from the high record of 1912, are as follows:

1896	80	1905	110
1897	84	1906	114
1898	92	1907	118
1899	93	1908	125
1900	99	1909	134
1901	104	1910	137
1902	116	1911	131
1903	107	1912	143
1904	108	1913	139

On account of the European War, however, and the consequent turning of millions of men from production to destruction, a new high level of food prices was reached in 1914. This is evident from a comparison of these price levels for the first nine months of the years 1912, 1913, and 1914:

	1912	1913	1914
January	139	137	142
February	138	138	141
March	144	139	142
April	152	142	141
May	152	138	139
June	148	137	141
July	143	139	144
August	140	139	152
September	140	140	160

The usual fall of food prices as the new crops are harvested in the summer and early fall was instantly checked even by the threatened outbreak of the war, and instead prices rose for a time to record heights. This is more strikingly evident in a comparison of the changes in food prices week by week from July, 1914, through the middle of October:

July		*September*	
Week		Week	
First	143	First	160
Second	145	Second	162
Third	146	Third	162
Fourth	146	Fourth	161
		Fifth	158
August			
First	141	*October*	
Second	144	First	153
Third	156	Second	152
Fourth	158		

The highest point was reached during the middle of September, however, and by October, when American commercial readjustment was under way, wholesale food prices, though still at an abnormally high level, were declining. (See also XIII, *Economic Conditions.*)

LABOR LEGISLATION

IRENE OSGOOD ANDREWS

Accident and Disease Reporting.—Steady progress was made in the legislative year of 1914 toward more complete records of death and disability caused by industrial accidents and occupational diseases. Two legislatures enacted measures bearing on accident reporting, that of Alaska which included provision for reporting mine accidents in a new mine-safety code, and that of Massachusetts which made accidents in gas and electric plants reportable. One state, New Jersey, added to its existing provisions for the reporting of occupational diseases by requiring, as part of a comprehensive measure for sanitation in lead works and potteries, that reports be made of diseases found in the monthly medical examination of workers in those establishments.

Factories and Workshops.—An important measure for the prevention of industrial incapacity in factories and workshops is the New Jersey act affording protection against occupational diseases, with special reference to lead poisoning in lead works and potteries (Ch. 162). This measure is similar to that enacted in 1913 in Ohio and Pennsylvania (*A. Y. B.*, 1913, p. 425). Four states, Louisiana, Massachusetts, New York and Virginia, gave further attention to protecting wage-earners from fire, while Maryland passed two comprehensive laws regulating the sanitary condition of canneries and tenement workshops. Work in all places where food products are manufactured, packed, stored, deposited, collected, prepared, produced or sold is placed under the supervision of the state Board of Health, which, after a public hearing, may make rules for the enforcement of the act (Ch. 678). Owners of factories, workshops, manufacturing, mechanical and mercantile establishments employing five or more persons, must register with the Bureau of Statistics and Information within six months after the act takes effect, and new establishments and those which change their location must register within 30 days. In order to carry on any tenement-house manufacturing, a

license stating the maximum number of persons allowed to work in such room must be secured from the Bureau of Statistics and Information. The Bureau must deny the license in case of contagious disease or unsanitary conditions and must inspect the premises every six months. Licensed rooms must have at least 500 cu. ft. of air space per person, and those who may work therein are limited to the immediate family, defined as husband and wife, their children, or the children of either. A register must be kept of the names and addresses of persons taking out work, and goods given out must be labeled with the name and address of the manufacturer; work must be sent only to licensed workrooms. Licenses may be revoked for failure to comply with the conditions under which they were granted, for violations of the law, or if the health of the community or of the persons employed thereunder requires it (Ch. 779). Sanitary conditions in food establishments were also regulated in Georgia.

Massachusetts and New York strengthened their requirements for sanitary equipment in mercantile establishments; Massachusetts establishing for any person having charge of any such building or any room thereof, any exit door of which shall be found to be unlawfully fastened, a penalty of $25 to $500 or imprisonment for not more than one year or both. In New York the Factory Investigating Commission appointed in 1911 was continued with power to investigate the need of minimum wage regulations. It must report to the legislature not later than Feb. 15, 1915; an additional appropriation of $50,000 was granted it. The Commission expects to make recommendations concerning the revision of the labor law as well as in regard to minimum-wage legislation. An extensive law was enacted in Virginia which required that substantial hand rails must be provided on stairways; doors must open outwardly, and must not be locked or fastened during working hours; belt shifters and loose pulleys must be provided, dangerous machinery must be properly guarded, and workrooms, halls and stairs leading to the workrooms must be properly lighted (Ch. 16). Sufficient ventilation must also be provided in foundries. A very great degree of discretionary power is given to the Commissioner of Labor, but the laws mark an advance for the state.

One of the notable pieces of labor legislation of the year is the law for the protection of workers in compressed air enacted in New Jersey (Ch. 121), the second state in the Union to adopt such a measure. In every tunnel, caisson, or place where persons are employed in compressed air, the employer must install air gauges, and timepieces in charge of a competent person who may not work more than eight hours in any 24. He must also provide two air pipes connected with each work place, a suitable iron ladder and electric lights in each shaft, a properly heated, lighted and ventilated dressing room, always open, with benches, lockers, hot and cold showers, and sanitary water closets, and a separate room for drying clothes. If the maximum air pressure above normal exceeds 17 lb., a properly heated, lighted and ventilated double-compartment hospital lock is required, at least six feet high, equipped with inside and outside air gauges and timepieces, telephone, benches and medical equipment. One or more licensed physicians must be in attendance at all necessary times, and if the maximum air pressure exceeds 17 lb., one or more registered nurses or other persons certified by the medical officer must be employed. All persons applying for work in compressed air must be physically examined and those not qualified and those addicted to the excessive use of intoxicants must not be employed. In his first 24 hours a new man may work only half the regular time, and if the pressure exceeds 15 lb. he may not return to work until reëxamined. Examinations must be repeated after three-months' continuous work, and on returning after ten-days' absence; a detailed record of each examination must be kept. No work is allowed in pressure over 50 lb., except in cases of emergency, and work periods are from 1½ to 8 hours according to the degree of air pressure.

In Massachusetts ammonia compressors must be equipped with safety

valves, for which the Board of Boiler Rules must formulate specifications. By another act (Ch. 649) the construction, use and inspection of compressed-air tanks are carefully regulated. No person may install or use any tank or other receptacle for the storing of compressed air at more than 50 lb. pressure per square inch for use in pneumatic machinery, unless such person has had within two years either a certificate of inspection from the boiler inspection department of the district police or an insurance policy on the tank and also a certificate of inspection by an insurance inspector certified as competent by this department. The Board of Boiler Rules must regulate the size, shape, construction and maximum pressure of gauges and other appurtenances necessary for the safe operation of all receptacles covered by the act.

Mines.—Three states and the territory of Alaska legislated upon the subject of safety in mines. Maryland appointed a commission to investigate and report an adequate protective law, while in Ohio additional provisions for mine safety were made and placed under control of the Industrial Commission. Alaska appointed a territorial mine inspector, under the supervision of the Federal inspectors of mines, for two years at $2,500 a year and also passed a law limiting hours in mines and related processes (see "Hours of Labor," *infra*). In Kentucky the mine-safety code was entirely rewritten, and a Department of Mines created with a chief inspector at a salary of $1,800 a year. Mines must be inspected at least once in every four months.

Railroads and Street Cars.—Safety on railroads was considered during the year in Mississippi, where a full-crew law was enacted; in South Carolina, where repair sheds and warming boards were required; and in Virginia, where headlights on engines were required together with special provisions for caboose cars. Two Louisiana acts provide for enclosed vestibules between Sept. 1 and May 1 on any electric street-railway car. By another law no person, except during strikes, may act as motorman or conductor on an electric street railway without having first received (in cities of less than 25,000) ten-days' instruction and a certificate of fitness from a competent instructor, who must have worked in like capacity for the company for at least one year. (See also XX, *Railroads*.)

Administration of Labor Laws.—Seven states dealt with the machinery for more efficient administration of their labor laws. In Louisiana, Maryland, New Jersey and Virginia the existing labor departments were slightly reorganized, salaries increased and in some instances the number of inspectors increased. For the first time in Mississippi (Ch. 163) a factory inspector is authorized to be appointed by the state Board of Health at a salary of $1,500 a year. The inspector has jurisdiction over all factories and canneries where women and children are employed. He must inspect all such establishments at least three times each year, and must register each year all manufacturing establishments employing five or more persons, charging a registration fee of $10 to $200 according to the average number of employees in the regular or busy season. All establishments covered by the act must report to the inspector the usual information concerning the character of their business, hours of labor, number of employees, etc. Several laws of minor importance were enacted also in Massachusetts and New York, and the Federal Government created a special inspection staff for the enforcement of its new law regulating woman's work in the District of Columbia (see "Woman's Work," *infra*).

Child Labor.—For the first time in our history, a complete child-labor law was secured through the initiative. In Arkansas the people adopted on November 3 a measure which provides that children under 16 may not be employed for more than eight hours a day, nor for more than six days or 48 hours a week, nor before 6 a. m. or after 7 p. m. Children between 16 and 18 may not be employed for more than ten hours a day, nor for more than six days or 54 hours a week, nor before 6 a. m. or after 10 p. m. The state Board of Health is given the power to extend, subject to court appeal, the list of dangerous or

unhealthful occupations prohibited to children under 16.

In the four southern states of Georgia, Kentucky, Mississippi and Virginia the child-labor standard was, on most points, raised. In Kentucky (Ch. 72) and Mississippi (Ch. 164) the age and hour limits are the same as in Arkansas, except that in Mississippi the age limit was reduced from 16 to 14 for boys and from 18 to 16 for girls, and hours for children over this age were increased from eight to ten per day. In Mississippi boys of 12 and girls of 16 may still work in cotton mills. In Virginia, the hours for children under 16 are ten a day, six days a week, with night work prohibited between 9 p. m. and 7 a. m. (Ch. 339). New Jersey's amended law places limits on hours and ages practically the same as those in Arkansas; additional safeguards are placed upon the granting of certificates and additional industries are added to the prohibited list, which may be extended by the Commissioner of Labor (Chs. 60, 223, 236, 252, 253).

In New York, the hours of children under 16 years of age in mercantile establishments, business or telegraph offices, restaurants, hotels, apartment houses, theaters or other places of amusement, bowling alleys, barber shops, shoe-polishing establishments, or in the distribution or transmission of merchandise, articles or messages, or in the distribution or sale of articles, are reduced from nine a day and 54 a week to eight a day and 48 a week; the hour for ceasing employment in the evening is made 6 p. m. instead of 7 p. m. (Ch. 331). The selling of newspapers by boys over 12 years of age was also regulated (Ch. 21), while in Maryland the age at which boys may sell papers was reduced from 12 to 10 (Ch. 27). Amendments to existing laws were enacted also in Louisiana, Mississippi and in Ohio, where the age limit was raised from 14 to 15 for boys and 16 for girls. Practically all of the laws on the subject of child labor contain restrictions as to dangerous trades, regulations concerning the issuance of certificates and compulsory school attendance, and provisions for enforcement.

Hours of Labor in Public Employment.—Action was taken on the question of hours of labor on public works in Massachusetts, where a law providing a Saturday half-holiday throughout the year for state employees was submitted to the voters, as well as laws providing two weeks annual vacation and an eight-hour day for city employees, while several cities are considering the eight-hour day for city employees. A new city charter submitted to the voters of Buffalo, N. Y., will if accepted by them bind the contractor not to discriminate as to workmen or wages against members of labor organizations nor to accept more than eight hours as a day's work, performed within nine consecutive hours, except in case of necessity to be paid for at the rate of time and one-half. Alaska enacted a measure limiting hours on public works to eight in one day.

On hours in private employments five states enacted legislation in 1914. Louisiana reduced the hours of stationary firemen in cities of 50,000 population or more to eight a day, but placed a penalty only on employers who "compel" more than eight hours, while Maryland and Massachusetts provided two full days' rest each month with compensation for railroad employees engaged in directing train movements; Massachusetts also limited the hours of station laborers and baggagemen to nine a day. In Mississippi the ten-hour law for adult men in manufacturing and repairing, which has twice been upheld by the state courts, was amended to exempt establishments handling perishable agricultural products and employing adult men only (Ch. 168), while the weekly rest day law in New York was amended to exempt a number of milk-handling establishments and, in the discretion of the Commissioner of Labor, certain continuous industries (see also *Labor, supra*).

Immigration.—Rhode Island (Ch. 1078) authorized a commission of five members (which, however, must not involve the state in any expense) to study the immigration problem and to draft legislation. The commission must investigate the method of living, distribution, educational and business

opportunities of immigrants and their relation to the industrial, social and economic condition of the people of the state. The purpose of the investigation is the enactment of laws to bring non-English speaking foreigners, resident and transient, into sympathetic relation with American institutions and customs. The commission may send for persons and papers and administer oaths, and must report to the governor by Jan. 15, 1915. Maryland established an employment bureau particularly for the distribution of immigrants (see "Unemployment," *infra*).

Pensions and Retirement Systems.—The only state to take up the question of pensions and retirement systems during the year was Massachusetts. The Director of the Bureau of Statistics was required to make a detailed study of old-age dependency as a basis of possible legislative action (see also *Labor, supra*). He must collect data on the number of persons 65 years of age and over in the state, their length of residence in the state, the number of dependent persons in public and private institutions, the number of persons who are in receipt of aid from public sources and the amount of such aid. He may also collect data on the number of persons aided by private sources, the total amount so paid, and any other information likely to promote the purposes of the inquiry. Members of the state employees retirement system may after 15 years' continuous service be retired for permanent disability at not more than one-half their average yearly salary for the preceding ten years. The tables now in use by the retirement board must be used in determining the amount, which must not be less than $200; the board may call upon the surgeon-general to assist it in determining the degree of disability, and the board's decision is final (Ch. 419). Two years instead of one year is made the period within which a member of the system must be reinstated after suspension or dismissal in order to be rated as in continuous service, and engineers and inspectors in the intermittent service of the state are not to lose the benefit of continuity in the interval between employments.

Trade Unions and Trade Disputes.—Trade unions and trade disputes occupied the attention of the legislators in three states, in Alaska, and in Congress. Mississippi requested that the Federal Industrial Relations Commission be utilized to end a railroad strike then in progress. Alaska (Ch. 70, Laws of 1913) enacted a mediation and arbitration act which provides that when a controversy concerning wages, hours of labor or conditions of employment arises which interrupts or threatens to interrupt the business, the Governor must upon application of either party endeavor to settle the dispute by mediation, either personally or through a commission. If this effort fails, he must, with the written consent of the parties, endeavor to bring about arbitration by a board of three persons, to be named, one by the employer, one by the union or unions concerned, and a third disinterested person by these two. In case of failure to name the third arbitrator within five days of the first meeting, the submission to arbitration is to be recalled. A majority of the arbitrators may make a binding award. Louisiana protected workmen in their right to organize by making it unlawful to coerce, require, demand or influence an employee to enter into any contract, written, verbal or implied, not to become or to remain a member of any labor organization as a condition of employment (No. 294).

The most important law of the year affecting trade unions, however, was that of Massachusetts, where labor combinations for the purpose of improving wages, hours or conditions are explicitly declared to be legal, and the issuance of injunctions in labor disputes is restricted. Persons seeking employment may not be indicted or prosecuted for entering into any agreement or combination with a view to lessening their hours, increasing their wages or bettering their condition, or for any act in pursuance of these purposes which is not in itself unlawful. No injunction shall be granted in any dispute over terms of employment unless it is necessary to prevent irreparable injury to property or to property rights for which there is no remedy at law, and such

property or property rights must be particularly described and sworn to in the application. Rights in connection with the relation of employer and employee are construed as personal and not as property rights. In cases involving violation of contract but no threatened irreparable damage to property or property rights, the parties must be left to their remedy at law. (Ch. 778.) Another law requiring employers advertising or soliciting for employees during strikes to mention explicitly the existence of the strike is amended to apply also to lockouts and all other labor troubles (Ch. 347). The law providing for a state Board of Conciliation and Arbitration is amended to make investigation of labor disputes by the Board dependent upon the failure of the parties to agree upon a settlement and their refusal to submit the matter to arbitration.

Congress in appropriating funds for the enforcement of anti-trust laws for the second time specified that none of the money was to be used for prosecuting labor organizations whose acts were not in themselves illegal, and also enacted, as a part of the Clayton Anti-trust Act (Public No. 212, 63d Cong., 2d sess.), a law specifically forbidding the application of anti-trust laws to labor organizations and regulating the use of the injunction in labor disputes. This new law, supplementing existing anti-trust legislation, declares that "the labor of a human being is not a commodity or article of commerce," and prohibits the construction of the anti-trust laws to forbid the existence and operation of labor, agricultural or horticultural organizations instituted for mutual help and not having capital stock or conducted for profit; individual members of such organizations must not be restrained from carrying out their legitimate objects, and such organizations and their members must not be construed to be illegal combinations or conspiracies in restraint of trade. No restraining order or injunction may be granted by any United States court or judge in labor disputes concerning terms or conditions of employment, unless necessary to prevent irreparable injury to property or to a property right, for which there is no adequate remedy at law; and such property or property right must be described with particularity in the application, which must be in writing and sworn to. No restraining order or injunction may prohibit any person or persons, singly or in concert, from stopping work; from peacefully persuading others to work or to stop work; from attending any place where they may lawfully be; from ceasing to patronize or to employ any party to the dispute; from peacefully persuading others to do so; from giving or withholding any strike benefits or other things of value; from peacefully assembling in a lawful manner and for lawful purposes; or from doing anything which might lawfully be done in the absence of such dispute; and none of the acts enumerated shall be considered violations of any laws of the United States. (See also I, *American History.*)

Unemployment.—Spurred by the experiences of the winter of 1913-1914 (see XV, *Unemployment*), three states made provision for public bureaus to put employment givers and employment seekers in touch with each other. Louisiana authorized its municipalities to open such bureaus free of state tax or license (No. 307), and Maryland authorized the Board of Immigration Commissioners to establish in its bureau an agricultural employment department for supplying gratuitously efficient farm help (Ch. 429).

The most comprehensive measure of the year in this field is that of New York, which created a Bureau of Employment in the state Department of Labor, with branches throughout the state in the discretion of the commissioner of labor, with a director chosen by civil service. For each branch office the commissioner of labor must appoint an advisory committee composed of representative employers and employees and a chairman agreed on by the majority. The advisory committee may appoint sub-committees as advisable. Employers or employees may file with the office a notice of a strike or lockout affecting their trade, which must be communicated to the opposite party to the dispute and exhibited together with any answer in

the office. Applicants for situations affected by the dispute must be advised of the statements. No person shall suffer any discrimination or be otherwise prejudiced on account of refusing to accept employment upon the ground that a strike or lockout exists or that the wages are lower than current for that trade and district. Separate divisions may be organized in any office for men, women and juveniles, and these may be subdivided into divisions for farm labor and such other classes as the commissioner of labor may decide. Applicants between the ages of 14 and 18 may register at school on special forms, which when transferred to the employment office must be treated as personal registration, and provision is made for coöperation between the superintendent of the office and the school principal in securing suitable employments for children. The advisory committees must appoint special sub-committees on juvenile employment, consisting of employers, employees and persons possessing knowledge of education or of other conditions affecting children. The commissioner of labor must arrange for the coöperation of the branch officers, including the interchange between them and public posting of lists of vacancies, which he may also supply to newspapers and to other sources of information; he may also expend five per cent. of the appropriation for the Bureau in soliciting business by advertising or otherwise. No fees direct or indirect may be charged to or received from any applicant. The Bureau of Statistics and Information must publish a bulletin giving all possible information on the state of the labor market, including reports of the various offices. All employment agencies other than those established by the act must keep a register of applicants for work and for help in such form as required by the commissioner of labor, who may inspect such registers and to whom information therefrom must be furnished as required. The maximum penalty for a superintendent, clerk, subordinate or appointee who accepts any fee, compensation or gratuity from any one seeking labor or employment is a fine of $500 or six-months' imprisonment or both, and such person is thereafter disqualified from holding any position in the bureau (Ch. 181). No legislation was enacted bearing on private employment agencies.

Wages.—Legislation on the subject of wages in public and in private employment was enacted in nine states. Maryland fixed the rates of pay of all laborers employed by the mayor and city council of Cumberland at not less than $2 a day, while in Massachusetts the wages of several classes of employees were established by law. Women cleaners and scrub women employed by Suffolk County must be paid not less than $8 a week; male laborers employed by the Board of Prison Commissioners must not be paid less than $2.50 a day; while the wages paid to mechanics employed on public works must not be less than the prevailing rate of wages in the same occupation in the locality. The Metropolitan Water and Sewerage Board is authorized to increase the wages of its engineers, firemen, oilers, coal passers and screenmen, not to exceed in the aggregate $5,000. The annual salary of elevator men at the State House is increased to $1,100, and the annual salary of porters at the State House is increased to $850. New Jersey required all county employees in counties of the second class to be paid semi-monthly. Semi-monthly pay laws affecting private industries were enacted in Louisiana, Mississippi and South Carolina; the last two states also forbade the discounting of trade checks, while Massachusetts amended its weekly pay-day law to include workshops and mechanical establishments. Alaska, Kentucky, Louisiana and New York enacted or amended wage-lien laws.

Following the appointment of a commission in Ohio in 1913 to study conditions surrounding the screening of coal, legislation was enacted in 1914. This law, which was the occasion of a strike during the summer, has been upheld by the Ohio Supreme Court. The act provides that miners and loaders of coal who are paid by weight must be paid according to the total weight of coal contained in the car in which it is removed from the mine. The coal must, however, con-

tain no greater percentage of slate, sulphur, rock, dirt, or other impurity than that determined from time to time by the Industrial Commission. Miners and loaders and their employers, or the Industrial Commission upon the request of either, must fix for stipulated periods the percentage of nut and other fine coal allowable; if the commission finds that the percentage of fine coal is higher than that fixed by it, it must issue and enforce orders for the reduction of the percentage. The employer may not screen coal in such a way as to reduce its total weight. Employer and employee may agree on deductions from pay on account of impurities in excess of the percentage fixed. The penalty for an employer screening coal so as to reduce weight is a fine of $300-$600 for each offense; the penalty for a miner or loader loading a car with impurities in excess of the percentage fixed, 50 cents for the first, $1 for the second and $2 to $4 for the third offense within a period of three days. (S. B. 3.)

Woman's Work. — Minimum-wage legislation in 1914 was represented only by a Massachusetts act amending the existing law (*A. Y. B.*, 1912, pp. 406, 423) in several particulars as a result of the year's experience under it. The number of representatives of employers and employees on wage boards may now be any equal number, instead of not less than six as formerly. The commission must notify employers and employees in the occupation of its intention to establish a wage board and must request both sides to nominate representatives, from whom, provided the names are furnished within ten days, the commission must select. In addition to the records previously required, employers must now keep a record of the amount paid each week to each woman and minor. An employer may not discharge or discriminate against an employee who "has served or is about to serve upon a wage board, or is or has been active in the formation thereof, or has given or is about to give information concerning the conditions of such employee's employment," or because the employer believes the employee may do these things. The penalty for such discrimination remains $200 to $1,000 for each offense. (Ch. 368.)

Five states and the Federal Government took action on hours and working conditions affecting women. Mississippi established for women a ten-hour day and a 60-hour week, and Virginia extended its ten-hour law to cover certain establishments not previously affected, while New York made its nine-hour day and 54-hour week general for women employed in all mercantile establishments and limited their working week to six days. Amendments to other woman's-work laws were made in Massachusetts, where pulleys, casters or other mechanical contrivances are now required on boxes weighing with their contents 75 lb. or more, and in South Carolina, where women employees in mercantile establishments may not be allowed (instead of required) to work later than 10 p.m. Congress established for females in the District of Columbia an eight-hour day and a six-day week of 48 hours, prohibited the employment of those under 18 before 7 a.m. or after 6 p.m., and provided a staff of three inspectors, two of whom must be women. The act applies to any manufacturing, mechanical or mercantile establishment, laundry, hotel, restaurant, telegraph or telephone office, or to any express or transportation company, in the District of Columbia, and is administered by the commissioners of the District of Columbia (Public, No. 60, 63d Cong., 2d sess.).

Workmen's Compensation and Insurance. — With the enactment of workmen's-compensation laws in Kentucky (Ch. 73), Louisiana (No. 20), Maryland (Ch. 800), and New York (Ch. 41), 24 states, or just half of those in the Union, now have legislation of this type. The New York act was made possible by the constitutional amendment of 1913 (see *A. Y. B.*, 1913, pp. 55, 432) which nullified the effect of the decision in the Ives case, by which, in 1911, the compulsory workmen's-compensation act of 1910 was declared unconstitutional. All of the new acts apply to enumerated lists of hazardous employments. The acts of New York and Maryland are compulsory, while those of Kentucky and Louisiana are elective.

New York, Maryland and Kentucky create state workmen's-compensation funds. In the latter state, the employers subject to the act are required to contribute, while in New York a special inducement to join the state fund is made, since the employer by joining relieves himself from personal liability, while other methods of insurance do not have this effect. Fifty per cent. of wages is the scale of benefit in Kentucky, Louisiana and Maryland, while in New York (and the amendments of 1914 in Massachusetts) it is 66⅔ per cent. of wages. Kentucky provides for additional benefits by way of penalty when the employer has violated laws enacted for safety or has employed a minor contrary to law. In other details, such as waiting period, medical care, lump-sum payments, computation of average wages, liability of third parties, modification of awards and submission to medical examination, notice of claim and limitation, notice of accident or injury, the new acts present the usual features.

Of special importance are the amendments made in the Massachusetts act, where two-years' experience has indicated several desirable changes. In this state, benefits are increased from 50 per cent. to 66⅔ per cent. of wages; death benefit must be paid for 500 instead of 300 weeks, but the total amount is limited to $4,000. Medical and hospital services must be furnished not only during the first two weeks after the injury, as previously, but also for the time of incapacity if not immediately caused by the injury, and in unusual cases, in the discretion of the Industrial Accident Board, for a longer period. The classes of total dependents in case of death are broadened to include a wife living apart from the deceased for justifiable cause or because he has deserted her, the findings of the Board on such questions to be final, and children under 18 (or over that age but physically or mentally incapacitated from earning) by a former marriage. The maximum compensation for total incapacity is raised from $3,000 to $4,000, and for partial incapacity the period of benefit is extended from 300 weeks to 500 weeks, with a maximum of $4,000. (Ch. 708.)

Miscellaneous Legislation.—In New York the disastrous failure of a department store firm and the consequent loss by its employees of money compulsorily contributed by them to an establishment benefit fund led to the enactment of a law against such forced contributions. The measure provides that mercantile corporations must not, by deduction from wages, by direct payment or otherwise, compel employees to contribute to any benefit or insurance fund maintained for them by any corporation or person; contracts whereby such contribution is exacted are void. (Ch. 320.) Alaska forbade coercing employees to buy goods at any particular place, inducing workmen to change their places through false information about work, and the importation of armed guards.

Mississippi and Virginia regulated the bonding of common carrier employees, and Massachusetts enacted several minor laws requiring preference on public work to be given to citizens of the state (Ch. 600), extending to four years the period during which lamplighters losing their employment may be transferred to other work without civil-service examinations, and requiring engineers or other persons in charge of steam boilers, heating, lighting and power plants maintained by the state to be placed under civil service.

XVII. AGRICULTURE, HORTICULTURE, FORESTRY, AND FISHERIES

AGRICULTURE

E. W. Allen

Agricultural Extension.—An event of great significance was the passage by Congress of an act, signed May 8, providing generous means for agricultural extension in every state. This rounds out and completes the movement for agricultural education inaugurated in 1862, with the passage of the Morrill Act for the establishment of agricultural colleges. The new Act, named for its authors the Smith-Lever Act, provides an annual appropriation of $10,000 to each state for agricultural extension work, "in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same." The appropriations are to be assigned to the agricultural colleges in the respective states, and the work is to be conducted in coöperation with the U. S. Department of Agriculture, which has funds for similar purposes. This work is to consist of "the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise."

The initial appropriation of $480,000 became available on July 1. An additional sum of $600,000 is appropriated for the fiscal year 1915, and thereafter the amount increases by a half-million dollars a year until it reaches a total of $4,580,000, eight years hence, when it continues as a permanent annual appropriation. Each state will receive the basal appropriation of $10,000 uniformly, but the additional appropriations are to be allotted annually to the respective states in the proportion which their rural population bears to the total rural population of the country. They are also to be met by equal amounts provided by the several states; hence on the maturity of the Act in 1922 a total of nearly nine million dollars annually will be provided for agricultural extension. Such states as Pennsylvania and Texas will then receive considerably over $250,000 a year from the Federal appropriation, and a like amount from sources within their borders, while nearly half the states will receive $100,000 or more from the Federal appropriation. A clause carried in the Agricultural Appropriation Act provides that correspondence, bulletins, and reports relating to the extension work are to be carried in the mails free of charge for postage. This in itself will be an important aid and economy in the conduct of the enterprise.

Under this Act extension divisions have been organized at each of the agricultural colleges, and plans made for conducting a campaign of demonstration and extension teaching. In most of the states coöperation has been entered into with the Department of Agriculture, under which the Department's demonstration work will be closely united with the demonstration and other extension work under the new Act. The county-agent plan will be very generally followed, these agents arranging coöperative demonstration trials with farmers, aiding farmers in furnishing them in-

formation and in a great variety of other ways, promoting organization, and acting as centers for the stimulation of better farming. Special officers will organize and supervise boys' and girls' clubs, conduct educational exhibits at fairs, hold short-term movable schools for the farmers and their families, and otherwise attempt to place before them the teachings and the ideals of the agricultural colleges and experiment stations.

The work which is now given such an impetus is not new, but has been conducted for several years in some of the states, and by the Department of Agriculture in the form of coöperative demonstration work. This demonstration work, started first in the South to minimize the damage from the cotton boll weevil, has spread throughout the country until there is appropriated for it by Congress over a million dollars for the current fiscal year. This amount is very largely supplemented by local appropriations and contributions. There are various other provisions for extension work in the Department's appropriations, in dairying, in combating animal diseases, in the extension of stock raising, in developing the agriculture of particular regions, etc. The joining of this work with the extension work of the colleges will secure unity of action under a consolidated state organization, centered in the agricultural college. In this way a vast national system will be provided for the improvement of agriculture and country living along highly practical lines.

Department of Agriculture.—The Agricultural Appropriation Act for the year 1914-15 again established the principle of Federal aid to agriculture in the broadest use of the term, providing for the maintenance and development of the manifold activities of the National Department of Agriculture to a larger extent than ever before, and opening the way to an increased efficiency through a reorganization of its work and coöperation with the states. The act carries a total appropriation of $19,865,832, an increase of $1,878,887, or more than 11 per cent. over the previous year. Nearly two-thirds of the total amount is now absorbed by its administrative and regulatory functions, which have steadily grown in recent years. Next to these, the development of funds for extension and demonstration work has been most rapid. Some of these features have been noted above. The aid rendered this work in the South by the General Education Board, a foundation supported by John D. Rockefeller, in coöperation with the Department was eliminated by Congress, on account of opposition which developed when the bill was under consideration. For several years the Board has contributed $250,000 a year, placing that amount practically at the disposition of the Department for the purpose of demonstration work in the South. In limiting the Federal funds to use in coöperation with funds from purely local sources, Congress increased the appropriation correspondingly, the total for this form of work in the North and South being $1,073,240. In addition, a specific appropriation was made of $40,000 for extension work among the settlers on the government reclamation projects by means of demonstrations, advice, and in other ways; one of $60,000 for coöperative experiments and demonstrations in live-stock production in the sugar-cane and cotton districts; and a provision in the appropriation of $400,000 for the campaign against the cattle tick, allowing $50,000 to be used for live-stock demonstrations in areas freed of ticks, in order to encourage the development of stock raising in the tick-free portions of the southern states.

Most of the various regulatory and police functions assigned to the Department received increased support, in addition to the permanent appropriations. An increase from $10,000 to $50,000 was provided for the protection of migratory game and insectivorous birds. The appropriation for the enforcement of the Plant Quarantine Act was increased from $40,000 to $50,000, with $50,000 additional to enable coöperation with states quarantined against the interstate movement of Irish potatoes, on account of dangerous diseases. The Appalachian Forest Reserve Act of 1911 (*A. Y. B.*, 1911, p. 423) was amended by increasing from five to 25 per cent. the proportion of the gross

receipts from the lands acquired under its provisions which is returnable to the respective states and counties for the benefit of their public schools and roads. The appropriation for studies of the marketing and distribution of farm products was increased from $50,000 to $200,000. Authority was also given the Department for studies of coöperation among farmers in rural credit and other lines, and to disseminate information on the subject, with an appropriation of $40,000 for the purpose. This continues the work of the Rural Organization Service, started in 1913 (*A. Y. B.*, 1913, p. 468), which was supported by funds from the General Education Board, and which the attitude developed in Congress had the effect of withdrawing.

Other new projects for which definite appropriations were made include $10,000 for the importation of Corriedale and other sheep for breeding purposes, $5,000 for studying the grading, weighing and handling of naval stores, $7,000 for the publication of reports and maps on the kelp beds of the Pacific Coast, $10,000 for furnishing official cotton grades and samples to certain associations, $5,000 for agricultural extension work in Hawaii, and $20,000 for an exhibit at the International Dry Farming Congress, held at Wichita, Kansas, Oct. 7-17, 1914, illustrative of farming in the sub-humid regions.

The appropriations for some of the larger bureaus were as follows: Weather Bureau, $1,667,270; Bureau of Animal Industry, $2,320,026, in addition to the permanent appropriation of $3,000,000 a year for meat inspection and about $700,000 in special appropriations; Bureau of Plant Industry, $3,616,045, including $257,000 for the Congressional seed distribution, which there was an unsuccessful effort to eliminate; Forest Service, $5,548,256; Bureau of Chemistry, $1,077,581; Bureau of Entomology, $829,420, including $310,000 for the gypsy and brown-tail moth campaign; Bureau of Soils, $360,635; and Office of Experiment Stations, $1,930,780, of which $1,440,000 is for the state experiment stations under the Hatch and Adams Acts.

Authority is given for the preparation of plans for reorganizing and redirecting the work of the Department, in order to secure closer coördination and more economic and efficient administration. This plan is to be submitted to Congress, the estimates for the fiscal year 1915-16 being arranged on the basis of its provisions. The most significant feature in the reorganization plan is the grouping of the extension and demonstration work of the Department with the supervision of the new extension measure, and the Office of Experiment Stations into a States Relations Service, through which the Department may work in dealing with the agricultural colleges and experiment stations. This step is in furtherance of the announced purpose of the Secretary of Agriculture to bring the Department and the agricultural colleges into the closest cooperative relations and to conduct its extension work through these institutions. Much progress has already been made in these directions.

Experiment Stations.—A sharper differentiation of experimental work from extension and propaganda activities, and preparation to confine themselves more closely to the acquisition and testing out of new facts and information, stand out as the most conspicuous note of progress in the experiment stations during the year. The change grows out of the more definite organization of agricultural extension work, which will serve to relieve the stations and allow them to concentrate their attention more closely on experiment and investigation. There has been a fear that the present enthusiasm for extension work would have the effect of weakening the support for the stations, so that they might not be able to keep step with the progress. The extension work will naturally rest very largely upon the work of the experiment stations and be permanently sustained by it. It will furnish an outlet for the latter and provide a contact with practical agriculture which it has been hard to maintain without encroaching upon the time of the station workers. The activity of the stations has made the present extension movement possible, by providing the materials and winning public

confidence; and the interest in instruction, investigation, and extension in agriculture is now so broadly established, and the place and importance of each so well understood, that no backward step in support is likely.

Several extensive pieces of research have been published during the year which illustrate the high character of some of the investigation now carried on in addition to the more economic experiments. The results of the important researches are given in other articles and need not be enumerated here. The regulatory and police work assigned to the stations in many of the states continues to increase, but is generally organized so as to be conducted independently of and without interference with the experimental work. In addition to the fertilizer and feeding-stuffs inspection, this service now includes nursery and insecticide inspection, certification of dairy glassware used in making the Babcock test, conducting the official tests for advanced registry of dairy cows, registration of stallions for public service, and the manufacture of hog-cholera serum furnished to farmers practically at cost. The latter has assumed large proportions, and extensive commercial plants are now operated for the purpose. In Missouri a new serum plant was authorized and begun, with an appropriation of $50,000, and a new modern plant was provided at the Kansas station. In Minnesota an emergency appropriation of $15,000 was granted for hog-cholera serum production, supplementing the previous appropriation of $25,000. Most of the other states where hog raising is a prominent industry already have large serum plants.

The California station started, in coöperation with the Department of Agriculture, an extensive experiment on the reclamation of alkali land by drainage ditches and a pumping system, to be conducted on the large ranch of the University at Kearney Park, near Fresno. Extensive tracts in the vicinity have been severely injured by seepage of irrigation waters and the accompanying rise of alkali. This experiment aims at a practical means of reclamation. The stations in Connecticut have inaugurated a corn survey of the state, to ascertain what varieties are being grown to best advantage in different sections, to compare these by growing them in the northern and southern sections, and to conduct improvement work by selection. The territorial legislature of Hawaii made an appropriation to the Federal Experiment Station for use in improving the marketing conditions for local farm produce. A territorial market division was established under its supervision, which has made available a much larger market with considerably better prices. An immediate result has been greatly increased plantings of miscellaneous farm produce and the extension of poultry and hog raising. In Ohio, the county experiment farms have commended themselves to such an extent that under the provisions of a state law some 16 counties voted in November upon the proposition to tax themselves for the purchase and maintenance of county experiment farms. The sites are selected by the state experiment station, and experts from the latter plan and supervise the experimental work. It is expected that the county agents connected with the extension work will have their headquarters at these farms. There are already eight of the district and county experiment farms, several of which have been in operation for some time. A new one was located during the year and work with truck crops started at another station. A new farm was purchased by the state for the Arizona station in the Salt River Valley, at a cost of $30,000, to furnish facilities for its work in that representative irrigated district. At the state University the building of a new $165,000 agricultural building was begun, to accommodate the college, station, and other agricultural work. In Maine a farm for the station in Aroostook County was acquired, costing $23,000, to study special problems of that section. The Virginia legislature increased the annual appropriation of the station from $10,000 to $16,000, and the state Board of Agriculture increased its allotment for station work to $7,500 annually. An additional station to conduct experiments in peanut and cotton culture was established. A new building

for the use of the horticultural department of the Pennsylvania college and station was completed at a cost of about $120,000; and in Massachusetts the second half of a building designed especially for forestry, vegetable gardening, and landscape gardening was finished, and a new $210,000 agricultural building was begun. A plant-industry building was erected at the Iowa state college and station, to furnish accommodations for work in farm crops and horticulture, with greenhouses adjoining covering about one-half an acre. A soils building, for which $100,000 was available, is one of the additions to the agricultural group of the Cornell Agricultural College and Station. A commodious animal-husbandry building, with a large stock-judging pavilion adjoining, have also been provided at the same place. These examples are sufficient to show the steady growth and substantial character of the equipment at these institutions.

The Crop Year.[1]—Despite the fact that the spring-wheat crop fell short of early expectations, the total wheat production in the United States was the largest on record, the estimate being 892,000,000 bu. This is 129,000,000 bu. more than the 1913 crop, which was the record production to that time, and more than two million bushels in excess of the five-year average. Prices ranged high, much above those of 1913 or the five-year average.

The requirements of wheat for food in the United States during the 1914-15 crop year are estimated at about 525,000,000 bu., and for seeding at approximately 77,000,000 bu., leaving a surplus of 290,000,000 bu. for exportation and feed for live stock. Usually only a small quantity of wheat is fed to live stock, but in 1913 a large wheat crop, coincident with a shortage of corn in several states, caused considerable feeding of wheat, estimated at nearly 30,000,000 bu. The present high price of wheat as compared with corn would tend to check the feeding of wheat, hence most of the 290,000,000 bu. surplus will probably be available for exportation. The largest amount of wheat (including its equivalent in flour) ever exported from the United States in a year was 235,000,000 bu., in 1901. Indications point to a decline in the wheat crop of the world. There is a shortage in Europe, which it is expected will be magnified by complete returns. There were also shortages in Canada, Argentina, and British India, while the combined output of the United States and Australia exceeded that of the preceding year by 140,000,000 bu.

The corn crop was placed at 2,676,000,000 bu., and was helped by favorable conditions for maturity and less frost damage than usual. The crop is nearly a half-million bushels below the record year of 1912, but is nearly up to the average for the past five years. Following the short crop of 1913, the price held considerably above the five-year average. For the first time in the history of the United States, corn was imported from Argentina, partly because of the removal of duty (formerly 15 cents a bushel) and partly because of the shortage in the 1913 crop. The effect of the importation was to check the rise in price due to the short home crop.

Oats, with an estimated production of 1,137,000,000 bu., was an average crop, and again the price showed an advance of several cents. Barley and rye, with estimated productions of 197,000,000 and 43,000,000 bu. respectively, were larger than in 1913 or the five-year averages. The indications were for a potato crop of 384,000,000 bu., which may rank second in size, exceeded only by the big crop of 1912. Prices were lower than in 1913 and considerably under the five-year average.

The cotton crop was probably the second largest ever produced in the United States, estimated at 15,340,000 bales of 500 lb. gross weight, linters not included. The production in 1913 was 14,156,000 bales, and in the record year of 1911, 15,693,000 bales. Owing to the market situation and the decline in price (see *infra*), it is thought by many that the crop will not be thoroughly picked. In places renters were reported to have aban-

[1] This discussion is based on the October estimate. The final December estimate is given in the tables at the end of this department.

doned their fields, leaving the final harvest to the land owners. Up to Nov. 9, 9,828,695 bales had been ginned, a million bales more than in 1913 at the same date.

There was a considerable falling off in the area planted to sugar beets, as a result of the tariff reduction on sugar. Some factories in less favorable locations closed their doors; others very generally reduced the contract price for beets, practically to meet the reduction in tariff on sugar, and this led farmers to reduce their acreage. The estimated production of beets is 4,826,000 tons, as compared with 5,659,000 tons in 1913, which produced 1,466,802,000 lb. of sugar. The prospect is that neither the growers nor the factories will profit by the increased price of sugar resulting from the war, which cut off the European beet sugar supply, as it is claimed the output of the American factories was contracted for prior to the outbreak of the war. Alarm was felt for a time over the inability to obtain beet seed for next year's planting, Germany being depended upon for the main supply. This seed is pedigreed, being grown from beet "mothers" of tested sugar content, and as the seed production is a specialized industry requiring the facilities of a chemical laboratory, it has not been entered upon to any considerable extent in the United States. Two years are required to produce the seed, the "mother" beets being selected at the end of the first year and set out for maturing seed. The Federal Government, working in the interest of the beet-sugar factories, which supply the seed to the growers, has arranged with foreign growers to furnish the seed and with the governments concerned to allow it to be shipped to this country.

The Cotton Crisis.—Rarely, indeed, has a crop been confronted by such a serious market condition, which so vitally affected a large section of the country, as the cotton crop of 1914. With the prospects of almost a record crop, the market was suddenly cut in two by the outbreak of the European War. In the case of the failure of an agricultural crop the growers usually have warning, but in this case the crisis came without warning or time for adjustment. Just prior to the outbreak of the war cotton was selling for $65 a bale of 500 lb. Within a week the great cotton exchanges of the world were closed and cotton was practically unmarketable. This condition continued for months, and the prospect raised the greatest concern throughout the cotton states. For years nearly two-thirds of the crop has found market in foreign countries, largely in the countries now at war. In 1913 Germany alone took two and one-third million bales, and France over a million bales. The situation is intensified by the fact that cotton is a credit crop, more so than any northern crop. It is also preeminently a small-farmer's crop. It is raised to large extent by tenants, usually on shares. As a rule the landowner furnishes the seed, guarantees the fertilizer bills, and arranges with the local merchant for credit for the tenant on provisions for his family until the crop is made. Often he furnishes a house, a horse or mule, and even feed for it. Settlement comes when the crop is sold, and the time for this is usually fixed in the lease.

Outside the tenant system, the men who grow cotton in the main live and produce the crop on credit. Hence they are rarely in position to hold a large part of it, but usually must dispose of a considerable part to meet their obligations. They cannot consume it on the farm, like grain, but must depend upon the demands of manufacture. Landowners, local merchants, fertilizer dealers, bankers, money lenders, and other branches of business are involved in the credit scheme. If sales are not made the whole industrial system breaks down, unless something can be done. Hence, it was not merely a case of warehousing the crop but of arranging for loans so that it could be carried. Every effort was used to prevent growers from throwing their crop on the market and thus greatly depressing the price. The Secretary of the Treasury announced that promissory notes, secured by warehouse receipts for cotton, would be accepted from banks belonging to currency associations as security for the circulating bank notes up to 75 per cent. of their

face value. But this at once involved the price at which the cotton was to be valued as security. This in turn depended on the withholding of this year's surplus and on the reduction of the 1915 acreage. Assurance of a greatly reduced acreage would naturally serve to sustain this year's prices. But this assurance could not be guaranteed, although it was proposed to accomplish it through state laws and a system of taxation. The provision of such laws would require time, hence money in the southern banks did not solve the situation. The state and national governments were turned to, with proposals that they practically buy the crop, or that the government should in some way fix a price for cotton. The Federal Government, however, declined to commit itself to valorization of cotton, and Congress declined to authorize an issue of emergency currency for the relief of the situation.

Meanwhile cotton was being harvested and some sales were made at 6½ and 7 cents a pound, but the demand was small. The credit extended on the crop had usually been on the basis of about 12½ cents a pound. The widespread "buy-a-bale" movement, in which all who could afford to were urged to buy a bale of cotton for cash and store it for a year, operated to bring relief to growers who were obliged to raise a little cash, and served for a time to keep the surplus off the market. Credit was further extended to local merchants by wholesalers, and everything possible done. Crop reduction is looked to as the main hope. Attempts in that direction in the past have failed, and reliance is mainly placed in legislation which would tax overproduction.

Throughout the South, information is being sought as to other crops which can be grown in place of cotton, and the Department of Agriculture is urging cotton farmers to grow their own food, vegetables, eggs, poultry, pork and other meat, and also their own corn, hay and feed for stock.

Movement of Farmers.—The U. S. Bureau of the Census has issued a surprising analysis of data collected by it as to the extent to which farmers move. The latter are commonly thought of as unusually permanent in their location, but the class includes a large body of tenant farmers. The data were collected from nearly six million farm operators. Approximately 52 per cent. of these had occupied their farms less than five years. There was a greater degree of permanency in the North and West than in the South, where tenants move frequently. In this class of "floating" farmers there was little difference between the races, 33 per cent. of the white and 36 per cent. of the colored tenants of the South reporting that they had been resident on the same farm one year or less. More than a million farmers, or one-sixth of the entire number, reported that they had operated their farms less than a year, a startling fact which shows one great difficulty in improving the industry.

As between owners and tenants, only 8.63 per cent. of "owners, free," in the United States are reported as having occupied their farms for a year or less, while 52.27 per cent. of "share tenants" were in this class. Whereas 48 per cent. of "owners, free," reported that they had occupied their farms 10 years or over, only 6 per cent. of "share tenants" had a tenancy of that length. Correlating these facts with the corn crop, the average yield was found to be considerably larger in those sections where farmers generally have operated their farms for periods of five years or over than in sections where the period of occupancy is shorter or more unstable. This seems reasonable, for several years are required for a farmer to get acquainted with the soil, climate and other conditions in a new locality, so that he becomes proficient. Frequent moving is a hindrance to the progress and rural prosperity of a community. The roads and bridges are generally in a poor condition, farm buildings are not kept in good repair, and the unstable farmer shows a lack of interest in the schools, churches and general welfare of the community.

Tillable Land Under Cultivation.—According to estimates of the Department of Agriculture, published during the year, only 27 per cent. of the tillable land in the United States is now

under cultivation. The estimates are based on reports of 35,000 correspondents. The entire country, excluding foreign possessions, contains about 1,900,000,000 acres. Of this area approximately 60 per cent. is estimated as tillable, or capable of being brought under cultivation by the plow. This includes land which may be made available by clearing, drainage, irrigation and other means. About 19 per cent. of the whole area is estimated to be non-tillable but valuable for pasturage and fruit growing. Only 21 per cent. is regarded as of no use for agriculture, present or future.

The last census showed 311,000,000 acres in crops, or about 27 per cent. of the estimated potential tillable area. In other words, for every 100 acres now in cultivation about 375 acres may be tilled when the country is fully developed. These undeveloped tillable areas lie mostly in certain of the western states, Florida having the largest body of any of the eastern states.

Fertilizers.—The steady increase in the use of fertilizers in the United States is shown by their increasing production and the importation of fertilizing materials. The domestic manufacture of fertilizers, for example, as reported by the last census, amounted to $104,000,000, or nearly double the total reported in 1904. Imports of fertilizer materials have also increased, data compiled by the Department of Commerce for the period ended with April, 1914, indicating greatly enlarged receipts of nitrates, potash, and other similar materials. Nitrate of soda ranks first in value of these imports, the amount in the last fiscal year having exceeded a half million tons, valued at over $20,000,000. About 15 per cent. of this is used for fertilizer. The imports of sulphate of ammonia increased from 15 tons in 1903 to 55 tons in 1913, valued at nearly $4,000,000. There was also imported 15,000 tons of calcium cyanamide, a compound made by fixing the nitrogen of the air. Kainite, a potash salt, was imported last year to the extent of 466,000 tons, sulphate of potash, 43,000 tons, and other fertilizer salts, 172,000 tons, these three classes having a total value of about $6,000,000. Approximately 90 per cent. of the imported potash is used for fertilizers. Other important fertilizing materials imported last year included 33,000 tons of bone dust or animal charcoal, 15,000 tons of Thomas phosphate meal derived from basic slag, and 115,000 tons of miscellaneous materials used only for manures. The imports of guano have decreased greatly in the past decade, owing to scarcity of this material as an article of commerce. The European situation has called attention to the dependence of the United States upon Germany for its potash supply, and has revived interest in attempts to find an American source. Press reports state that the deposits at Searles Lake, California, discovered several years ago, will furnish an output of about five tons a day with present equipment, but will be increased to 120 tons a day. The last Agricultural Appropriation Act provided for the publication of reports and maps dealing with the location, extent, etc., of the kelp beds of the Pacific Coast. These reports are now in press. It is estimated that the kelp is sufficient to supply far more potash than is used in this country, if its recovery from that material is found commercially possible. The threatened scarcity of potash has led manufacturers of commercial fertilizers to modify their formulas, reducing the proportion of potash to some extent in order to conserve their supplies.

Several American writers have called attention to the rate at which the phosphate rock of this country is being exported, amounting annually to fully twice the phosphorus contained in the entire wheat crop of the United States. The domestic production of rock phosphate has doubled since 1902, the total for 1912, according to the U. S. Geological Survey, being about 3,000,000 tons, of which 1,000,000 tons were exported. In view of the necessity of this material to many soils, it has been urged that its exportation should be restricted. No nitrate deposits have been found in the United States in sufficient quantity to promise commercial value. The latest report relates to a deposit in Arizona. An important domestic

source of combined nitrogen is ammonium sulphate derived from gas works and coke ovens. The output of this by-product has increased in 10 years from 17,643,507 lb. to 99,070,777 lb., and large amounts are still allowed to go to waste. The extensive production of nitrogen compounds from the air by electricity waits on cheap hydro-electric development. A concern at Niagara Falls is now putting on the market 64,000 tons of calcium cyanamide a year.

Farmers' Weeks and Other Educational Movements.—The gathering of farmers and their wives at the agricultural colleges for a week, at a convenient season of the year, has come to be an annual function at a large number of these colleges. The interest is shown by the large numbers who attend and the close attention they pay to the program provided for them. The attendants go to school for a week, and are kept fully occupied with lectures, demonstrations, and conferences. These "weeks" are very live and inspiring occasions, and the college people practically give themselves up to them for the time being. The past year there was an enrollment of over 1,500 at the Massachusetts week, nearly 2,300 in Missouri, and over 2,500 at Cornell, with a total attendance on the latter of nearly 3,500. Great benefit is apparent from this closer contact of the farmers with the college and the better understanding of its work.

A rural ministers' short course was held at the Nebraska College of Agriculture; and in California the university invited the rural clergymen of the state to spend a week at the agricultural school and experiment farm at Davis, in a study of rural problems. The railroads offered free transportation. In the five days, 75 lectures and demonstrations were given, and round tables were conducted each afternoon. Nearly 500 clergymen came, representing Catholics and Protestants and 18 denominations. They returned home with a broadened conception of the agricultural problems and practices of the people they minister to, and in position to act as field agents of the college.

A correspondence course in agriculture, offered by the California College of Agriculture, had 6,000 students within a few months of opening, the largest number taking poultry raising. In that state about 80 agricultural clubs have been organized in high schools by the extension division, assisted by the Agricultural Club of the college.

An "agricultural consultation train," operated over four of its divisions by the New York Central Railroad with the coöperation of the Cornell College of Agriculture, was a new form of extending aid and advice to farmers. No formal lectures were given, but two cars of exhibits based on experimental work were shown, and these were interpreted by instructors competent to give general information.

Direct Buying and Selling.—The Post Office Department began in the fall to make exhibits of the parcel-post system at state and county fairs, in order that the farmers might become familiar with its advantages. These exhibits illustrated the direct exchange of farm products with city customers, showing sample packing boxes and containers, and the preparation of sample shipments ready for consignment. Literature was distributed suggesting methods by which direct trade with the city might be established. Over 125 such fair exhibits were made, the individual postmasters in each case volunteering to do the work. The visiting public showed much interest in the farm-to-table plan of shipment, and in many cases an immediate stimulus of farm shipments followed. In some cities the post-office officials have posted or circulated lists of farmers prepared to supply customers direct, thus aiding farmers in getting into direct relations with householders. Many patrons of the parcel post reported satisfactory dealings in this way.

Centralized Poultry Packing.—There is a marked movement in the handling of poultry which threatens to make the dressed-poultry industry as highly centralized as the beef industry, cutting off the local market to the farmers for poultry just as it has that for cattle. Apparently the same evolution which finally did away with the local slaughterhouse, and in large part with the local butcher, is going

on with reference to chickens, centralizing all final handling for the great markets in big cities many hundred miles away from the production fields. In place of local poultry-packing establishments, buyers are to increasing extent picking up live poultry to be shipped several hundred miles to large centers where it is slaughtered. This is held to be disadvantageous to the producer and also to the ultimate consumer. Evidently the poultry supply of large cities will be more and more in dressed form, but it is believed that local poultry-packing establishments in the producing sections can provide the best supply, for the reason that the nearer to the farm the live chickens are killed, chilled, and packed, the better will be their condition on arrival at the large market centers. Moreover, the local packing establishments have often had a very decided influence in improving the kind of poultry kept by farmers, resulting in better prices.

Rooster Day.—It is estimated that one-third of the tremendous annual loss of eggs is due to fertility. The Department of Agriculture, in calling attention to this, advised that on the first of May all male birds be either killed, sold, or confined until December or January, as it is not necessary to the laying qualities of a hen that a rooster be maintained in the flock. His presence means fertile eggs, which during these months spoil more rapidly, with consequent loss to the producer and the consumer. In furthering this campaign for the infertile egg, several states designated "Rooster Day" early in May, for the elimination or segregation of the rooster.

Personal and General.—Dr. Beverly T. Galloway, Assistant Secretary of Agriculture and former Chief of the Bureau of Plant Industry, resigned in the middle of the year to become director of the New York State College of Agriculture and Experiment Station at Cornell University, succeeding Dr. L. H. Bailey, resigned. Carl S. Vrooman, of Illinois, was appointed Assistant Secretary of Agriculture, in August, to succeed Dr. Galloway.

Prof. F. H. Storer, of Harvard, one of the pioneer agricultural chemists in this country and the author of a standard work on agriculture, died on July 30.

The Kansas Agricultural College celebrated its fiftieth anniversary, and the North Carolina Agricultural College the twenty-fifth anniversary of its founding at Raleigh, during the year. On both occasions representatives were present from similar institutions and also from the Department of Agriculture.

The sixth session of the Graduate School of Agriculture was held from June 29 to July 24, at the College of Agriculture, University of Missouri. The instruction was conducted along six main lines, genetics, agronomy, horticulture, animal husbandry, immunity and disease resistance, and farm economics and sociology, including farm management. The attendance was 150, about the average for this school, but as Dr. A. C. True, dean of the school, stated, "the desirability and importance of such an agency as the Graduate School of Agriculture, which aims to influence the movement relating to agricultural education and research by giving it certain impulses from the top, cannot be determined by the number of persons who come directly under its influence."

A section for agriculture was established in the American Association for the Advancement of Science, Dr. L. H. Bailey, of Ithaca, N. Y., being elected its first vice-president, and E. W. Allen, secretary.

The American Bankers' Association, which for a number of years has given much attention to agricultural matters, has constituted an agricultural commission for furthering its efforts. It has also begun the publication of a paper, devoted to the improvement of conditions of rural life, both economic and social, to be known as the *Banker-Farmer*.

DAIRYING

E. W. Morse

The Dairy Industry.—The United States is increasing in population at the rate of 21 per cent. in ten years, while the increase in dairy cows is only 15 per cent. Although the average yield per cow is slowly rising,

milk production is not keeping up with consumption. The cow-testing movement is spreading rapidly; 81 new associations were organized during the year. The increased use of silage has resulted in the erection of enormous numbers of silos in every section devoted to dairying. In the south there is a great eagerness to erect creameries but dairying is declining in some sections in the northeastern states.

The value of imports of dairy products for the fiscal year ending June 30, 1914, were as follows: butter, $1,753,461; cheese, $11,010,693; milk, cream and condensed milk, $2,639,034. The corresponding figures for the previous year were $304,090, $9,185,184 and $1,203,833, respectively. This increase of about 50 per cent. was due in part to the Underwood Tariff Act of 1913. The value of exports remained about the same as the previous year, but was considerably less than in 1911.

The previous world's record for the production of butter-fat was exceeded by the seven-year old Guernsey cow, May Rilma. In one year she produced 19,639.58 lb. of milk, containing 1,059.59 lb. of fat. A few months after completing the record, May Rilma was sold at auction for $5,010, the highest price ever paid for a Guernsey cow. A record price was also obtained for a Holstein, King Segis Pontiac Chicago; a bull calf, was sold to a syndicate for $20,000. The world's record of milk production was made by Tilly Alcartra, a Holstein cow, who gave in one year 30,452.6 lb. of milk.

The sixth International Dairy Congress was held at Berne, Switzerland, in June. The topic which received the largest share of attention was the milk supply of cities and its inspection. Other phases of the industry discussed at length were the use of by-products, standards for cheese, and the importance of the lactic-acid bacteria.

Milk Transportation and Distribution.—To produce a clean, safe market milk at present prices is a great economic problem. One important element of the problem is the waste involved in the duplication in the delivery of milk. A few European cities have solved the problem of waste in distribution by establishing municipal milk plants. Recent attempts to solve it in England have resulted in the formation of coöperative dairy associations, by which the producer receives more for his milk and the consumer is also benefited, because the sanitary control of production and distribution is made easier. In the United States an important step in milk transportation has been the construction of new types of refrigerator car by several railroads.

Sanitary Control of Market Milk.—The pasteurizing of milk, especially when from doubtful sources, in order to prevent the spread of disease is growing in favor each year. Investigations by Bowen of the Dairy Division, U. S. Department of Agriculture, shows it to be much less expensive than generally believed. A careful study of a number of plants showed the average cost to be 0.313 cent for a gallon of milk and 0.634 cent for a gallon of cream. Laboratory tests by Ayers and Johnson show that milk can be bottled hot and thus prevent reinfection while handling. This is a modification of the "holder" system and is less expensive than pasteurizing in the bottle; the bacterial reductions are just as great. They also found that certain strains of streptococci and Colon bacilli are not killed by pasteurizing the milk at 145 degrees.

On Oct. 1, five counties in northeastern Illinois were put under a Federal and state quarantine for tuberculosis whereby no cattle can be shipped from that territory for dairy and breeding purposes unless accompanied by a certificate showing that they have passed successfully the tuberculin test. This step was necessary, as a few cattle owners were in the habit of giving health certificates to purchasers of cattle that were obviously diseased.

An attempt to enforce a city ordinance in Milwaukee, that all milk come from tuberculin-tested herds, resulted in a strike of the milk producers, many of whom stopped shipping milk. To prevent a milk famine, a new supply had to be obtained and the entire milk trade of the city was thrown into confusion.

Investigations of Milk and Milk Products.—The study of the many problems presented by the dairy industry has resulted in many important discoveries during the year, only a few of which can be mentioned. The work of Palmer and Eckles at the Missouri Experiment Station, has shown that the yellow pigments in milk and milk products are not synthesized in the animal's body but come directly from the feed of the cow. Experiments of the Dairy Division of the U. S. Department of Agriculture have shown that good cheese of the Swiss type can be made, either by the addition of pure cultures of *Bacillus bulgaricus* or by the use of mixed cultures from old cheese. The peppery taste of Roquefort has been found to be due to certain volatile fatty acids. Unripened cheeses like cream and Neufchâtel are found to have so much sugar that they cannot be used as food for diabetics, while ripened cheese of the Cheddar, Swiss and Limburger types is entirely free from sugar. Although oxalic acid, an active poison, is produced by many molds, it is not produced by the molds prevalent in Limburger and Roquefort cheese. The growth of a typical Roquefort mold is controlled by the supply of oxygen available in the interior of the curd. Methods have been developed so that manufacturers are able to make a Camembert cheese equal to that imported. A method has been devised whereby buttermilk curd can be washed, making buttermilk casein equal to skim-milk casein for sizing. By means of a blowing process a condensed skim milk can be prepared suitable for ice-cream making.

Dairying in Foreign Countries.—Dairying in western Canada is making great strides. The number of cows is rapidly increasing, but in eastern Canada the rapid growth of the cities has increased the demand for market milk and changes in the United States tariff opened up a new market for Canadian milk. Consequently, near large cities and along the border many creameries and cheese factories have been closed. In other places centralized creameries are increasing in number.

One important effect of the war in Europe is the temporary decrease in the amount of fine-flavored cheeses exported to the United States. In Argentina dairying is developing rapidly; a national dairy association was organized in February in order to promote the industry.

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LIVE STOCK

E. W. MORSE

Live Stock Market.—The number of domestic animals kept on farms in the United States during the year was less than normal but about the same as in the previous year. The receipts of cattle and hogs at the western markets during the first half of the year were considerably less than in 1913, the greatest decreases being at Chicago and Kansas City. The high cost of feed and of stockers caused a very light movement of feeding cattle. The western ranges contributed fewer feeders than usual. Many cattle in need of finish went directly to the block. By July the cattle shortage was evident, the receipts at Chicago for that month being about 20,000 less than in 1913, and 100,000 less than in 1906. In August choice cattle were scarce and for a time high

prices were paid for prime bullocks. During the first week in August nine plants operated by Armour killed only 14,738 hogs and 17,512 cattle, as compared with 70,338 hogs and 31,836 cattle the previous week. There was also a shortage in feeding sheep, and the scarcity of ewes at the central markets shows that sheepmen have begun to recuperate their flocks and that the liquidation which has lasted for several years has ended.

For three years there has been a decline in the number of calves slaughtered at the big cattle markets, an indication that probably fewer calves are born and that more are raised to maturity. There seems to be a greater tendency to rear and fatten animals on the same farm. This is especially noticeable in Texas, where many breeders who have been in the habit of selling their feeders have done their own finishing.

Losses of Live Stock.—The loss of live stock from disease and exposure was as follows: cattle, 1,737,400, or 19.8 per 1,000 head; sheep, 2,124,400 or 21.7 per 1,000; swine, 7,004,800 or 119 per 1,000; and horses, 522,800 or 20.6 per 1,000. The losses of swine were more than in 1913, 90 per cent. being due to cholera. The losses of other animals were slightly less than normal.

Effect of the European War.—As with many other commodities, the war and accompanying financial disturbances temporarily unsettled the live-stock market. An unreasonable advance in prices early in August was soon followed by liquidation because of high prices, stringency in the money market, and the high cost of feed. By September the market for meat animals had steadied, though the fall prices on many grades were lower than if the war had not occurred. The elimination of Germany as a buyer depressed the prices of hog products. Agents from Canada and Europe bought up large numbers of horses, but inspection was rigid and thousands were rejected which speculators had bought from farmers to resell for army purposes. Apparently high prices for remounts will prevail for some time, and the outlook is bright for American-bred horses.

Meat Production.—A survey made by the Department of Agriculture shows that there are large areas of grazing land unused a part or the entire season for want of a supply of water for stock. The Forest Service has begun to supply watering places by improving springs, digging wells and making reservoirs. It is believed that a sufficient supply of water can be provided for nearly all of these unused grazing lands and thereby greatly increase the supply of beef from this source. Congress appropriated $60,000 for the investigation and demonstration of the possibilities of live-stock production in the South, especially in the boll-weevil and sugar cane districts, and $50,000 in areas where the cattle tick has been eradicated. An experimental farm for this purpose has been purchased in southern Louisiana. The present beef production is estimated by the Department of Agriculture to be somewhat less than 7,000,000,000 lb. The Secretary of Agriculture has issued revised regulations for the inspection of meat and interstate movements of live stock. The present unsatisfactory condition of the meat situation caused the Secretary of Agriculture to appoint a special committee to make a general inquiry into its causes.

Foreign Trade in Meat.—During the fiscal year ending June 30 the United States exported 143,357,441 lb. of meat and meat products, a large part of which consisted of lard and other pork products. The imports amounted to 49,892,878 lb., of which 43,837,348 lb. were beef. About 58 per cent. of the beef came from Argentina and the rest from Australia, New Zealand, Uruguay, Canada and Mexico. Argentine beef does little to lower the price of any but the lower grades of domestic beef, as much of it is consigned by the Buenos Aires *frigorificos* of the Chicago packing companies to themselves in New York. A small amount, however, comes from the British *frigorificos* at Buenos Aires. The Argentine beef that comes to this country relieves the London market of downward pressure, as Argentine dressed beef is about four-fifths of the imported supply of the United Kingdom. In October the French Government removed the import duty on meat.

Wool.—In June the Secretary of Agriculture called a conference of the sheep and wool interests in order to formulate policies regarding the grading of wool and the control of dogs and predatory animals. As a result of this conference growers and manufacturers have begun a campaign to standardize wool, and promote in all ways possible better methods in wool production.

There was an active market for merino and other fine wools the first half of the year, with cross-bred wool selling at low figures. The outbreak of the war reversed conditions; there was a sudden demand for heavy blankets and on Oct. 6 England declared an embargo on blankets and raw wool. The resultant higher prices for coarse wools in the United States and the difficulty of getting wool from Australia will tend to increase the imports of wool from South America. The total Australian clip and the average per head of sheep was larger than the previous year, but it will be of little benefit to the woolen industry of the United States. The wool imports of the United States under the first eight months of the new tariff showed a gain of 118,091,140 lb. over the same period of the preceding year.

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VETERINARY MEDICINE

William A. Hooker

A New Research Agency.—During the year a department of animal pathology was established by the Rockefeller Institute for Medical Research, with an endowment of $1,000,000, to which Dr. Theobald Smith of Harvard University was appointed as head. A gift of $50,000 was received by the Institute from James J. Hill for the study of hog cholera.

Foot-and-Mouth Disease.—The year 1914 saw another outbreak of foot-and-mouth disease in this country. The occurrence of the disease was discovered early in October in two counties in southern Michigan and two counties in northern Indiana and a quarantine was at once established and other steps taken by the Department of Agriculture toward its eradication. Before the discovery of the outbreak, however, shipments of infected stock had been made so that by the middle of November the disease had spread, and 17 states, from Washington, Montana and Iowa to Massachusetts, Maryland and the District of Columbia, had been quarantined. Perhaps the most deplorable circum-

stance was the appearance of the disease among the thoroughbred stock at the National Dairy Show at Chicago, making it necessary to quarantine all the cattle exhibited, nearly 800 in number and valued at more than two million dollars. The last outbreak, which occurred in Pennsylvania, Michigan, New York, and Maryland, in November, 1908, was eradicated at an expense of about $300,000 to the Federal Government.

Hog Cholera.—An appropriation of $500,000 was made by Congress for the purpose of combating hog cholera, which is estimated to have caused a loss of from 30 to 100 million dollars during 1913. Experimental areas in 15 states have been selected and approximately $20,000 will be spent in each. The appropriations are being spent in making surveys, using serum on hogs on infected and exposed farms, in sanitation and quarantine work, and in organizing farmers to coöperate with the state and Federal authorities. In addition, funds are to be used for the production by the Department of Agriculture of hog-cholera serum, and for the inspection and proper control of serum prepared by private and other agencies. The act provided also that not less than $50,000 be used in regulating the preparation, sale, and importation of viruses, serums, toxins, and similar products intended for the treatment of domestic animals, thus protecting against the use of such as would be dangerous, under strength, or ineffective. Reports received by the Department of Agriculture from county agents in 15 southern states indicate that a considerable saving was effected through the administration of hog-cholera serum after the hogs had become visibly affected with the disease. (See also *Agriculture, supra.*)

Work by King and Hoffmann with *Spirochæta suis*, in which Koch's postulates were as nearly fulfilled as it is possible to do with an organism possessing the biological characteristics of spirochetes, leads them to conclude that it is more nearly established as the specific cause of hog cholera than any other known organism.

Contagious Abortion. — Investigations reported upon by Cotton have shown that *Bacillus abortus* may, and in most cases does, persist for years in the udders of cows that have aborted, possibly for the balance of their lives, and during this time may be eliminated more or less continuously with the milk. The bacillus may make its appearance in the milk months before abortion occurs and may be eliminated for years from the udders of cows that never aborted. Although *Bacillus abortus* is known to be capable of producing abortion in sheep, the English commission reports finding that a vibrionic organism is the most common cause in Great Britain. The commission found that this organism would also cause abortion in cows. Investigations of the year indicate that the causative organism of abortion in the mare may also be the cause of infectious arthritis in colts, a disease more commonly known as navel or joint ill.

Glanders.—The favorable results obtained in investigations by Mohler and Eichhorn of diagnostic methods for glanders have led to the recognition of the mallein eye test for use in testing interstate shipments of equines. Tests made by the Bureau of Animal Industry show the glanders vaccine to give unsatisfactory results in immunizing against the disease.

White Diarrhea of Chicks.—Investigations of bacillary white diarrhea have shown that female chicks which are infected with *Bacterium pullorum* when young may develop into permanent bacillus carriers, and be a constant source of danger to young and old stock. Sour-milk feeding was found to have a most beneficial influence on the growth of chicks and to lessen mortality from all causes. Milk that is soured by the *bulgaricus* bacillus of Metchnikoff possesses no distinct advantages over naturally soured milk and has several disadvantages. The time and care involved in its preparation are considerable and it is not relished by chicks to the same extent as naturally soured milk.

Splenetic or Texas Fever and Tick Eradication.—The appropriation for the eradication of the cattle tick, which has been made annually by Congress since 1906, was increased to $400,000. It was provided that $50,000 of this sum might be used for

live-stock demonstration work in the areas freed of ticks. During the year some 29,000 sq. miles were released from quarantine, so that about 216,000 sq. miles of the 741,551 sq. miles formerly infested have been cleaned of the cattle tick and released. The Australian cattle tick, which in addition to transmitting Texas fever attaches to a much larger variety of hosts than does the native cattle tick, has been found to have become established at Key West, Fla.

Trichinosis.—In experiments carried on by Ransom it was found that the larvæ of *Trichinella spiralis* quickly succumb when exposed to a temperature of 0° F. The results suggest the possibility of substituting refrigeration for the microscopic inspection of pork as a preventive.

Eye Worm of Chickens.—Investigations by Wilcox and McClelland at the Hawaii Experiment Station have shown that the best treatment for the destruction of Manson's eye worm in fowls consists in anesthetizing the eye with a five per cent. solution of cocain, then lifting the nictitating membrane and dropping a five per cent. solution of creolin under and directly into the inner corner of the eye.

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DISEASES OF PLANTS

Walter H. Evans

The fifth annual meeting of the American Phytopathological Society

was held at Atlanta, Ga., on Dec. 30, 1913. Dr. F. L. Stevens, formerly dean of the College of Agriculture in Porto Rico, has assumed charge of the department of plant pathology at the University of Illinois. A new journal, *Revue Phytopathologie Appliquée*, made its appearance during the year.

Legislation.—Among the important events was a conference, under the auspices of the International Institute of Agriculture at Rome, on Feb. 24, to consider means for the international repression of plant diseases and insect pests, 31 nations being represented. On March 4 the delegates signed a convention, which has been submitted to the governments for ratification, that provides a system of inspection and certification for all plants offered for export, and for investigation and publicity of all new diseases and means for control. Thirty-seven countries are organized for this purpose at present. The temporary quarantine of Aug. 20, 1912, against certain European countries on account of diseases of potatoes was made permanent on Dec. 24, 1913. Some minor amendments were adopted during the year. On account of powdery scab in Maine, the shipment of potatoes from that state has been prohibited except under rather rigid regulations. In a similar way the importation of sugar cane and cotton seed into the United States is forbidden.

Nonparasitic Diseases.—Lipman has advanced the theory that dieback, a serious disease of citrus trees in California, is due to poor nitrification in the soils. Anderson has found that dust from cement works injuriously affected the setting of fruit in orchards to a distance of two miles, by inhibiting the germination of pollen. Melchers has described a mosaic disease of tomatoes grown under glass. A leaf curl of tobacco in Kamerun is attributed to abnormal nutrition.

Biological Studies of Fungi.—Arthur and Kern have reported studies on 16 species of Peridermium on pines; Fraser described a number of heteræcious rusts; Klebahn has given the results of studies on the wintering of rusts; Reed found biological specialization in the grass mildews; and Gilbert reports the same for the black knot fungus. Holway has added a contribution on the North American Uredineæ. Wollenweber has given a classification of the species of Fusarium based on physiological and morphological characters.

Diseases of Cereals, etc.—Some of the less known diseases of cereals, as stripe, foot rot, snowy disease, etc., have been quite troublesome in Europe. Stakman has given the results of his studies on rusts and smuts. Bolley and others are continuing their investigations of seed-borne and soil-borne diseases of cereals. Beauverie reports having found mycelium and spores of rusts within the pericarps of various grains. The timothy rust, only lately reported in the United States, is said to have become destructive in North Dakota and Wisconsin.

Forest Tree Diseases.—Hedgcock, Spaulding, Graves, Long, and others have described diseases of a number of forest tree species. The chestnut blight continues to be of interest, but the active campaign for its control has been very largely abandoned. Studies of the causal organism, *Endothia parasitica*, are being continued. The disease has been lately reported from British Columbia. American varieties of chestnut seem very susceptible to the disease, European less so, and Asiatic ones quite resistant. Several fatal cases of poisoning from eating diseased chestnuts were reported in Connecticut, but Clinton seems to have disproved the accuracy of such claims. Long reported the dying of chestnut and oak trees in New York and North Carolina due to attacks of *Armillaria mellea*. He has also reported on the cause of pecky cypress in the southern states. Spaulding has reported new localities for the white-pine rust, *Peridermium strobi*, and a new host, *Pinus excelsa*. Stewart claims the form of pine rust which occurs on the currant rarely or never winters on that host. Ordnung thinks smoke and dust injury make pines in Europe more subject to this disease. The European pine rust that has the sow-thistle for its alternate host was recently found in Wisconsin. A new bark disease of white pine in New England has been

described by Graves. Mangin reports the oak mildew, which usually does not attack American species, as having been found seriously infesting the American red oak, *Quercus rubra*.

Diseases of Fruits.—An unusually severe epidemic of fire blight of apples and pears prevailed in the northwestern states during the spring of 1914. Reed reports a similar attack of blossom blight of apples and pears in Missouri. A bacterial disease of pear trees in France was also reported. McAlpine has made an extended study of the bitter pit of apples in Australia. Cobb described a nematode disease of citrus trees that is said to occur in every important citrus-producing country. A new canker of grape-fruit trees was described by Stevens from Florida, and probably the same disease is reported by Edgerton on oranges in Louisiana and by Wolf in Alabama. A bacterial disease of tree ripe lemons has been noted in California. Raspberry yellows has been found in Ohio, Canada, and elsewhere. The American gooseberry mildew, so destructive in parts of Europe, has been definitely reported in France.

Diseases of Vegetables.—Potato diseases continue to demand attention in Europe and some forms of the leaf curl have been reported to occur in the United States. A storage rot of potatoes in Maine was described as due to a species of *Phoma*. A bacterial wilt of the same crop occurs in South Africa. Wilt diseases of potatoes, due to *Verticillium* and *Fusarium*, were reported from various parts of the United States. Eriksson claims in Sweden to have eradicated the black scab by sterilizing the soil with a strong formalin solution. Orton reports *Verticillium* attacking potatoes and eggplants in this country and dahlias and seedling maples in Germany. Stuart found certain European varieties of potatoes less subject to disease than American varieties, but they are of little commercial value. Jones reports continued success in breeding experiments with cabbage resistant to yellows. Hammond described a bacterial disease of chili peppers in New Mexico. Brooks found that stem end rot of tomatoes was due to malnutrition, being favored by heavy watering or the use of certain fertilizers.

Control of Plant Diseases.—Barre reports apparent success in the control of cotton anthracnose by treating the seed before planting with hot water. A large number of European experimenters have reported the successful use of the modified hot water treatment for the control of grain smuts, and Johnson found it also greatly reduced the infection due to *Helminthosporium*. The use of dilute sulphuric acid has been found to control damping-off of pine seedlings in seed beds. In a spraying experiment in Scotland an increase of 4,000 lb. of potatoes per acre followed the thorough use of Bordeaux mixture. The formaldehyde gas treatment, recommended for the control of potato scab, was found to injure the tubers if too great a volume of gas was used in proportion to the quantity of potatoes treated. For small quantities the solution is said to be preferred. In a comparative test of fungicides for the control of grape diseases in France, Burgundy mixture was found the most satisfactory of a dozen or more formulæ.

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ECONOMIC ENTOMOLOGY

William A. Hooker

Outbreaks of Insect Pests.—In the field of economic entomology the year

1914 was made notable by a serious outbreak of the army worm, *Heliophila unipuncta*, which extended from Texas throughout the eastern United States to New England. It is said to have been the most extensive outbreak of this pest of which there is any record. The destructive pine shoot moth, *Evetria buoliana*, was found to have been introduced from Europe and to have become established on Long Island. Later investigations have shown it to occur in ten localities in six states, from Massachusetts to Pennsylvania. During the course of an investigation at New Bedford and Fall River, Mass., of seed brought to this country from Egypt in baled cotton lint a live larva of the pink bollworm, *Gelechia gossypiella*, was discovered. This discovery emphasized the danger from this source, since considerable quantities of Egyptian cotton are shipped to southern mills, which in many cases are adjacent to cotton fields, and resulted in a quarantine being placed on such cotton. The discoveries of a widely distributed egg parasite of the chinch bug in Kansas, and of a legionary ant enemy of the Argentine ant in Louisiana, were reported during the year. The European warble fly, *Hypoderma bovis*, was recorded from Canada, it not having been previously known to occur to any extent in North America. Certain species of plant lice were reported to be active disseminators of the mosaic disease of tobacco. A quarantine was established against the melon fly *Dacus cucurbitæ* in Hawaii, and against sugar cane because of the insects and diseases affecting it in Hawaii, Porto Rico, and foreign countries.

House Fly.—In investigations conducted by the Bureau of Entomology, in which a large number of larvicides were tested, borax in the commercial form was found to be by far the most effective, economical, and practical substance for use in destroying fly larvæ and eggs in horse manure.

Cotton Boll Weevil and Cotton Leaf Worm.—The spread of the boll weevil continued. By the middle of October it had regained the line of its 1913 spread and was nearing the southwestern borders of both Tennessee and Georgia, with every prospect of entering these states for the first time before the fall dispersion was over. The defoliation by the cotton leaf worm which was quite extensive was responsible for a much wider dispersion of the boll weevil than would otherwise have taken place.

Argentine Ant.—This important pest was found by Newell in January to have become established as far west as Beaumont, Tex. This author reported that the legionary ant *Eciton schmitti* had been observed to raid colonies of the Argentine ant, and destroy the adults and carry off the larvæ and pupæ in the Louisiana citrus-growing section.

Mediterranean Fruit Fly.—Investigations have shown that by picking coffee four or five days before completely ripe, the loss occasioned to this crop by the attack of the fruit fly in Hawaii may be largely prevented and better flavored coffee produced. Investigations have shown that cold storage will destroy the fruit fly in any stage of its existence in avocados, papayas, figs, waterlemons, etc., if the fruit is kept for a period of ten days or more at a temperature of 32° F. For most of these fruits the storage at this temperature will improve the quality. In a detailed report, submitted by Silvestri, on his search in Africa for natural enemies of the Mediterranean and other fruit flies, it is stated that the rarity of such flies there seems to be due to parasites which he discovered and has introduced into Hawaii.

Thrips as Pollinators.—Investigations reported during the year have demonstrated that the thrips are active agents as pollinators of beet flowers, effecting both close pollination and cross pollination. To the horticulturist and plant breeder they are pests of the worst type, since they necessitate constant watchfulness and a refined technique in all pollination work. Under ordinary conditions in fields of commercial seed beets their work is thought to be beneficial.

Diseases of Bees.—Heating experiments by White have shown that the germs of the four important bee diseases are destroyed when the following temperatures are maintained for ten minutes: European foul brood, 63° C.; American foul brood, 98° C.;

sacbrood, 58° C.; and Nosema disease, 57° C.

Wilt Disease of Gipsy Moth.—Investigations of the wilt disease by Glaser and Chapman have shown the virus to be filterable with difficulty. No evidence was found that the polyhedral bodies are stages of the filterable virus.

Insects and Disease Transmission.—Investigations by Townsend have shown that a bloodsucking dipteron known as *Phlebotomus verrucarum* is probably the intermediate host in the transmission of the virus of verruga, a serious disease of man that occurs in parts of Peru. In experiments conducted by Mitzmain on the mechanical transmission of surra by the gadfly *Tabanus striatus*, the minimum number of flies with which the infection could be conveyed was two. He has also found both the stable fly and gadfly to convey anthrax infection directly from infected to healthy guinea pigs. Both of these flies may ingest the anthrax virus with the blood of affected animals, and discharge the spores in their feces from one to several days thereafter. Studies by Nicoll have shown that the house fly may convey the eggs of intestinal parasites from excrement to food both on the external surface of their bodies and in their intestines. Bérésoff has found that pathogenic bacteria may remain virulent in flies collected in hospitals after a hibernation of from four to five months. Herms and Nelson have called attention to the ability of the croton bug to pick up bacteria on its feet and mouth parts and deposit them on human food. The bacterial population of a single croton bug was found to be a minimum of 13,370.

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AGRICULTURAL LEGISLATION

H. L. KNIGHT

Federal Legislation.—The principal agricultural enactments of the year were the appropriation acts and the Smith-Lever Act establishing a national system of agricultural extension work (see *Agriculture, supra*). Agriculture was also affected by the Federal Reserve Act of Dec. 23, 1913, which extended the powers of national banks as regards loans on farm crops and similar collateral, and authorized long-time loans on farm lands; and by the Clayton Anti-Trust Act, which provides that nothing in the anti-trust laws shall be construed to prohibit agricultural or horticultural organizations instituted for mutual help and without capital stock or not conducted for profit (see I, *American History*); and by legislation opening up public lands to settlement (see X, *Public Lands*); and providing for the relief of settlers on reclamation projects (see X, *Reclamation*).

Cotton and Grain Legislation.—An act to regulate sales of cotton on exchanges for future delivery was signed on Aug. 18. This law is designed to minimize manipulation of the market by requiring the use of official grades, written contracts, and a system based on actual commercial values in making settlements, so that the market quotations will reflect more accurately the value of spot cotton of usable quality. It levies a tax of two cents a pound on all cotton not so sold, eliminates the very low grades of cotton, and authorizes the Secretary of Agriculture to establish standards from time to time. (See also I, *American History.*)

The serious situation confronting cotton producers and related interests following the outbreak of the European War led to a large number of relief propositions involving Federal aid in various forms. The Senate passed a bill Aug. 24 providing for the Federal licensing of warehouses for cotton, grain, and other nonperishable agricultural staples, and the use of uniform warehouse receipts based on standard grading of these products by licensed inspectors. These receipts, it was believed, by reason of the government supervision would constitute a relatively stable security for loans. This measure, however, was not acted upon by the House until December.

Strong efforts were also made to incorporate in the War Revenue bill a provision authorizing the issue of $250,000,000 of United States bonds for the purchase and temporary withdrawal from the market of 5,000,000 bales of cotton at approximately ten cents per pound, these bonds ultimately to be paid by the sale of the cotton and a special excise tax to be levied upon subsequent cotton crops. This amendment was rejected by the Senate on Oct. 17, as were also various other expedients proposed for the relief of cotton, tobacco, and grain producers and other interests, while in the House a special committee to investigate the cotton situation and report Dec. 15 as to legislation extending Federal financial relief to growers was appointed just prior to adjournment on Oct. 24.

A bill for the Federal inspection and grading of grain was defeated by the Senate, but a measure prescribing the use in interstate commerce of official grain standards was pending on the House calendar.

Rural Credits.—Following the report of the Federal commission appointed to investigate rural credits in Europe, over a score of measures were

introduced in Congress, proposing direct loans from postal savings and other funds, the opening of farm-land loan departments in national banks, and the establishment of a national system of farm-land banks or coöperative-credit associations. An increasing realization of the complexity of the subject and of the wide differences of opinion as to the most feasible remedies contributed to the postponement of all legislation. See also *Rural Credits, infra.*)

Pending Legislation. — A Federal commission appointed to consider the question of national aid to vocational education submitted a draft of a bill carrying an ultimate annual Federal expenditure of over $7,000,000 for grants to the states for the payment of salaries of teachers and supervisors in agriculture and the trades and industries and for the training of teachers. The states would be required to duplicate the Federal allotments, as well as to provide the necessary plant and equipment. See also XV, *Vocational Education.*)

The Senate has passed a bill establishing a standard apple box, and another making compulsory the use in interstate commerce of the standard barrel or a fraction thereof for fruits, vegetables, and other dry commodities.

State Legislation. — Although the legislatures of comparatively few states were in session, a number of important laws were enacted.

Marketing Farm Products.—In New York State a Food and Market Commission was authorized. This Commission is required to establish auction markets for sales of farm produce, and may also make private sales. Local coöperative warehouses for assembling farm produce and experts to inspect and grade it are to be provided, a daily market report is to be sent out, delays in transportation and combinations of buyers in restraint of trade are to be investigated, and advice given on general marketing problems and in organizing coöperative societies of producers and consumers.

In Hawaii a market division was organized by the Federal Experiment Station under a territorial appropriation for handling farm produce and improving market conditions. New Jersey cities were authorized to operate public slaughter-houses; the city of Providence, R. I., a public market; and Jamestown, N. Y., a municipal milk plant. Maryland municipalities were forbidden to charge farmers for licenses to sell their own produce.

Agricultural Credit and Coöperation. —A court decision in Colorado affirmed the constitutionality of an act providing for the use of nearly $1,000,000 of uninvested school funds for long-term farm loans at six per cent. interest. Provision was made in New York for a state system of land banks, consisting of local savings and loan associations with a central state land bank owned exclusively by them and empowered to make loans both from capital derived from the sale of stock and by issuing bonds. The Massachusetts law of 1909 providing for credit unions was amended, and the Virginia laws relating to the incorporation of associations were modified to facilitate the formation of *bona fide* coöperative organizations. (See also *Rural Credits, infra.*)

Farm and Home Demonstration Work.—Corporations for the employment of farm advisers were authorized in Massachusetts counties not maintaining state-aided vocational schools, and permitted to receive county funds. Towns were empowered to raise money and buy land for demonstration work. Virginia provided that county farms might be used for demonstration work. The county supervisors of Mississippi were allowed to establish departments of home economics under the direction of a county agent.

Agricultural Education in Schools. —Virginia's Board of Education was authorized to make grants of school funds for instruction in agriculture, home economics, and the trades and industries. Ohio and Missouri amended their laws, the latter by authorizing state aid to maintain high schools or employ additional teachers if approved agricultural courses and instructors are provided. Mississippi required agricultural teachers to pass examinations in their respective subjects. Massachusetts doubled its appropriation for premiums in boys' and girls' agricultural contests.

Inspection Laws.—The milk laws of Massachusetts, New Jersey and Rhode Island were considerably amended. In Massachusetts producers must obtain licenses from local boards of health in communities in which they sell, these being issued without charge after an inspection by the board. If a license is revoked, the State Board of Health is notified and it advises other prospective purchasers and communities, whereupon the sale of the milk to dealers so notified becomes illegal. In New Jersey producers must file annually with the local board of health a certificate of a veterinary surgeon that the cows have passed a physical examination. In Virginia the prompt cleansing of milk cans after use was required, and optional tuberculin testing of dairy stock with state remuneration for diseased animals was authorized.

A new fertilizer-inspection law was enacted in Virginia, while in South Carolina inspection of fertilizer factories and oil-mills was added. South Carolina also prohibited misleading claims for proprietary stock feeds, adopted a seed-inspection law, and regulated further the traffic in seed cotton. The Maryland seed law was amended by requiring statements as to purity and germination. New York compelled the labeling of nursery fruit trees and provided that damages may be recovered for trees which do not prove true to name.

Maryland enacted a comprehensive law for the inspection and control by the State Board of Health of sanitary conditions in creameries, canneries, and other food-producing establishments. Rhode Island amended its butter laws and provided for additional meat inspection.

Irrigation and Drainage.—The formation of conservancy districts was authorized in Ohio to reclaim wet or overflowed lands, provide for irrigation, or prevent floods. The Drainage Board of Massachusetts was empowered to purchase and drain lands for sale at cost plus four per cent. interest. New York authorized the formation of drainage districts similar to those in Michigan and Illinois. Changes in the drainage code were also made in Virginia, Mississippi, New Jersey, and South Carolina.

Miscellaneous.—The Torrens system of state guarantee of land title went into effect in Ohio on July 1. Maryland opened an agricultural labor employment office in connection with its Board of Immigration, and provided an exhibition room for farm products for the benefit of homeseekers. Mississippi empowered the state penitentiary to operate lime-crushing plants with convict labor and to supply farmers at cost.

RURAL CREDITS

R. Ingalls

Federal Legislation.—The American Commission, consisting of representatives from 29 states, the District of Columbia and four Canadian provinces, which went to Europe in the summer of 1913 to investigate coöperative agricultural finance, production, distribution and rural life (*A. Y. B.*, 1913, p. 489), submitted to Congress its information and evidence on Oct. 30, 1913 (S. Doc. 214); its observations on Dec. 5, 1913 (S. Doc. 261, Part 1); and a minority report on the same date (S. Doc. 261, Part 2). The United States Commission, consisting of seven members appointed by President Wilson by act of Congress, which accompanied the American Commission to investigate in European countries coöperative land-mortgage banks, coöperative rural credit unions and similar institutions, submitted its report on land-mortgage or long-term credit on Jan. 29, 1914 (S. Doc. 380, Parts 1 and 2), and its report on personal or short-term credit on March 13, 1914 (S. Doc. 380, Part 3).

With the report on land credit the Fletcher-Moss bill was introduced in Congress (S. 4246; H. R. 12,585). This bill authorizes the creation under Federal charters of farm-land banks, coöperative or otherwise, with capital of at least $10,000 each. Each bank may receive deposits up to 50 per cent. of its capital and surplus; collect and discount short-term commercial paper; and issue bonds subject to call at par not to exceed 15 times its capital and surplus on the

security of its mortgage loans. The loans may be made only for buying and improving farm lands in the state where the bank is located, and must be secured by first mortgage. They may not exceed 50 per cent. of the value of the mortgaged property, nor shall the amount to any one borrower exceed 20 per cent. of its paid up capital and surplus; in case of unimproved lands the amount may not exceed 40 per cent. of the value. All loans must be on the amortization plan if longer than five years: the period must not exceed 35 years nor may the interest rate exceed by more than one per cent. the rate of interest on the bonds which they secure.

The banks may be depositaries of postal-savings funds up to one-half their capital and surplus, and are privileged to the extent that they and their bonds are exempt from Federal, state and local taxation, except in respect to real-estate taxes, while their bonds may be used as legal investment for postal-savings funds and certain other funds. The commissioner provided for the supervision of the system may refuse to grant charters for banks in states which do not meet his requirements regarding simplification of conveyancing and foreclosure.

The Fletcher-Moss bill embodied substantially the recommendations of the American and United States Commissions; it did not, however, meet with the approval of President Wilson, so the Congressional sub-committees charged with plans for the development of rural credits in the United States prepared the Hollis-Bulkley bill which was introduced in Congress on March 12, 1914, as a substitute measure of the Democratic party. The latter bill (S. 5542; H. R. 16,478) provides for a national system of land credit under the supervision of a commissioner appointed and controlled by the Federal Reserve Board. The system includes Federal land banks and national farm-loan associations.

In every Federal Reserve District the Federal Reserve Board must establish a land bank with a capital of at least $500,000, to which the Secretary of the Treasury must subscribe for any unsubscribed balance. Shares held by national farm-loan associations are called class "B"; those held by others are called class "A," and cease to have voting power when class "B" equals 50 per cent. of the outstanding stock. Dividends of six per cent. may be declared: after that all profits must be turned over to the Government, after certain provisions made for general and special reserves. Three of the nine directors shall be appointed by the Federal Reserve Board.

A Federal land bank may receive deposits from stockholders of class "B," and invest its funds in first mortgages on real estate within its district; it also may issue bonds, but only upon the security of farm mortgages assigned to it by national farm-loan associations in its district. The bonds may be issued only upon approval of the Federal Reserve Board through the Federal reserve agent of the district. The smallest series allowed is $100,000 and the total in circulation must not exceed 20 times the capital and surplus of the bank, while the interest rate may not exceed five per cent. per annum. The Federal reserve agent of the district acts as trustee of the mortgages used to secure the bonds.

No limit is set to the number of national farm-loan associations which may be formed in any district. The commissioner may grant a charter to five or more natural persons wherever he deems it advisable. Every association must have a capital of at least $10,000 and may be organized as a corporation or like a building and loan association. The powers of every such association shall be to make first-mortgage loans on the amortization plan of from five to 35 years on farm lands within the district where located, but only for the purpose of liquidating prior indebtedness or for buying or improving the land. The interest must not exceed the legal rate of the state in which it is located. The largest loan allowed is $4,000, and it may not exceed 50 per cent. of the value of the mortgaged land plus 25 per cent. of the value of buildings thereon. No more than 20 per cent. of the capital and surplus may be lent to any one person; the borrower must be a member of the association and hold stock in amount equal to five per cent. of his loan.

A national farm-loan association may invest its funds in mortgages purchased from other such associations and in bonds of Federal land banks; it also may assign mortgages to the land bank of its district and borrow money thereby provided it holds shares in such bank in an amount equal to at least 10 per cent. of its own capitalization. It is required to subscribe for not less than $1,000 of the capital stock of such bank. An association may declare dividends of six per cent. after making certain provisions for a general reserve; in case of liquidation this reserve becomes the property of the land bank.

Federal land banks and national farm-loan associations shall be exempted from Federal, State and local taxation. The bonds likewise are thus exempted and they may be used as investment for postal-savings funds and certain trustees' funds, while the Secretary of the Treasury must purchase of them an amount not to exceed $50,000,000 a year.

The Hollis-Bulkley bill on account of its state-aid features was less favorably received by President Wilson than the Fletcher-Moss bill. Secretary Houston in his annual report said: "There seems to be no emergency which requires or justifies government assistance to the farmers directly through the use of the Government's cash or credit." So for lack of satisfactory measures the programme on rural credits which the President had hoped to carry out was dropped for the year.

Many other bills were introduced in Congress during the year for land banks to be controlled or aided by the Federal Government, but they all died in committee. Efforts to improve short-term personal credit showed a desire for state-aid in a more marked degree than in the legislation proposed for land banks, but none of the many bills introduced for this purpose made any progress.

State Legislation.—Some important legislation regarding rural credits was enacted by the states. New York passed a law for the establishment of the Land Bank of the State of New York. The stock of this institution may be held only by savings (building) and loan associations and its bonds may be issued only on the security of mortgages obtained from such associations; its capital is variable, the minimum being $100,000, and it may be organized when ten associations with $5,000,000 of resources subscribe for and pay in that amount. Its object is to grant through the associations or directly out of its own funds long-term loans on farm lands in New York and in that part of New Jersey where the New York associations may operate. Vital changes were made in the law on savings and loan associations to enable the Land Bank to carry out this object, while coöperative principles were ignored in respect to its organization and management to such an extent that the entire system of the savings and loan associations of New York has been materially altered. The Bank is not a government institution, although the comptroller of the state must act as trustee for the mortgages used as security for its bonds; it is simply a private bond and mortgage company with tax exemptions and monopolistic privileges.

New York also amended its law on credit unions in the following particulars: to permit the unions to have one person to act as secretary and treasurer; to give to members the right to exercise certain powers which formerly were lodged in the board of directors; to limit the investment of a union to loans to members and deposits in banks, and to enable a union to provide for unlimited liability of members. Massachusetts amended its law on credit unions so as to permit such unions to issue 40-year debentures, and to make reducible loans of a similar length on first mortgages on farm lands, for the purpose of lifting prior encumbrances and for purchase and improvements. A court decision in Colorado confirmed the constitutionality of an act providing for the use of nearly $1,000,000 of school funds for long-term farm loans at six per cent.

As a result of the agitation for improving rural credits there have been enacted by state legislatures during the last few years the following laws affecting land credit: in New York, a law for the establishment of the Land Bank; in Massachusetts, a law for

land-mortgage associations; in Indiana, a law for rural loan and savings associations; in Wisconsin, a law for land-mortgage associations; in Louisiana, a law exempting from taxation for 20 years trust companies which make farm loans; and in California, a law for mortgage insurance; while laws for so-called credit unions have been enacted in Massachusetts, New York, Wisconsin and Texas, the latter applying only to farmers.

All these credit-union laws are modeled on the Quebec law enacted in 1906. They ignore many of the principles and practices of Schulze-Delitzsch, Raiffeisen and Luzzatti, the famous originators of coöperative finance in Europe: they do not allow coöperative banking but provide merely for associations for receiving the savings of members and making loans to members, and are poorly adapted for the uses of farmers. The defects of these laws are pointed out by Myron T. Herrick in his book on *Rural Credits* (Appletons), published in 1914, which reviews the whole subject.

HORTICULTURE

E. J. Glasson

Crop Conditions.—Notwithstanding some local crop shortages due principally to prolonged droughts, the country as a whole produced an abundance of fruits and vegetables in 1914. At the close of the year, the ultimate effect of the European War on our export trade was still undetermined, but the immediate effect on crops usually destined for export was a reduction in wholesale, and, in some cases, retail prices. The commercial apple crop in the United States was estimated at 40,500,000 bbl. as compared with 31,000,000 bbl. in 1913. The Canadian crop was also large. California shipped 19,400,000 boxes of oranges and lemons, and 15,500 cars of fresh deciduous fruits, as compared with 7,000,000 boxes of oranges and lemons and 12,500 cars of fresh deciduous fruits in 1913. Florida's total shipment of fruits and vegetables amounted to 44,478 cars, of which 21,500 cars or about 7,500,000 boxes were oranges and grapefruit. Hawaii canned over 2,000,000 cases of pineapples in 1914, an increase of 500,000 cases over 1913. Porto Rico shipped $1,246,000 worth of fresh pineapples and $1,504,000 worth of oranges and grapefruit; a beginning was also made in the canned pineapple industry. The final figures for the 1913 pack of tomatoes, corn, and peas are 14,206,000, 7,283,000, and 8,770,000 cases, respectively. The onion crop was estimated at 6,900,000 bu. as compared with 4,690,000 bu. in 1913, and the Irish potato crop at 383,619,000 bu. as compared with 331,525,000 bu. for 1913.

Foreign Trade.—In the fiscal year ended June 30, our exports of fruits, vegetables and nuts amounted to only $38,786,908, as compared with $44,432,639 in 1913. The decline was due to the short home supply. We imported $68,554,793 worth of fruits, vegetables and nuts in 1914, as compared with $53,981,414 worth in 1913. The export figures are: fruits, $31,030,713; vegetables, $6,936,400; nuts, $819,795. The import figures are: fruits, $33,638,334; vegetables, $15,133,535; nuts, $19,782,924. Of the increased exports, oranges valued at $3,824,889 and fresh pears valued at $1,402,924 were shipped in 1914, as compared with oranges worth $2,976,520 and fresh pears worth $796,913 in 1913. Of the total fruit imports, bananas alone amounted to $16,397,884. Ornamental trees and plants to the value of $3,597,008 were imported in 1914, as compared with $3,206,584 in 1913.

Marketing Investigations.—The Department of Agriculture conducts its investigations relative to the handling, precooling, transportation, and storage of fruits on so large a scale that any beneficial results derived therefrom may be readily applied to commercial practice. As a result of the recently completed work with citrus fruits in California, for example (*A. Y. B.*, 1911, p. 502), losses from decay estimated at over $1,000,000 annually have been eliminated by improved methods of marketing. Florida growers and shippers are changing their methods with similar results. The system of packing and

cold storing California table grapes in drum barrels with a filler of redwood sawdust (*A. Y. B.*, 1912, p. 470) was used on a large scale in 1914 to enable holding and equalize distribution. Precooling and storage investigations with Bartlett pears have resulted in an extension of the normal marketing season by five or six weeks. Quite recent investigations demonstrated the possibility of picking Florida grapefruit early and storing for several months without refrigeration. On the other hand, the pineapple growers have been shown the value of refrigeration in transit as a means of shipping riper fruit of superior quality. The Department has found that frozen lemons, if gathered and stored when still frozen, may be thawed out with very good results at a temperature ranging from 45 to 50° F. In connection with the precooling work, a means of utilizing a mixture of ice and salt has been devised which greatly simplifies and makes more efficient the handling of refrigerating devices. A number of such plants have been erected by various fruit-growers' associations. A comprehensive study of the refrigerator-car service has thus far shown that the cars now in general use are not supplied with sufficient insulation to maintain uniform temperatures in all parts of the load during extremely warm weather.

Fruit Juices.—By a recent decision of the Department of Agriculture, all fruit juices to which alcohol has been added must be plainly labeled to show this if they are to be shipped in interstate commerce. The regulation took effect on Sept. 1. The Department has determined the best methods for preparing fruit juices from apples, pineapples, and other fruits. An important feature of this work has been the concentration of the fruit juices by means of refrigeration. An extensive experiment in the manufacture of concentrated cider was being conducted late in the year.

The year showed a decided increase in the number of grape juice factories. At the present time this industry forms the largest single outlet for the New York State grape crop.

Asparagus Substitutes. — Experiments conducted with udo, a Japanese vegetable which has been grown in this country as an ornamental under the name of *Aralia cordata* for some 20 years, have shown that it may be cultivated and used very much like asparagus, providing the shoots are blanched. The green shoots are rank in flavor, whereas the blanched shoots are said to be delicious. Analyses show the udo to have about the same dietetic value as celery or asparagus. The culture and uses of udo are described by David Fairchild ("Experiments with Udo, a New Japanese Vegetable," U. S. Department of Agriculture, Bull. 84).

The dasheen, a plant which is related to the ornamental caladiums, was introduced from tropical America a few years ago, and its tubers are now being cultivated as a substitute for potatoes in some parts of the South. Recent experiments conducted by the Department of Agriculture have shown that the shoots of these tubers may be forced out during the winter. When blanched, they may be used much like asparagus, the flavor being suggestive of mushrooms. The Department's experiments are described in a circular entitled "The Forcing and Blanching of Dasheen Shoots."

National Botanic Garden.—On Aug. 12 Congress passed the Slayden bill which provides for the transfer of the National Botanic Garden from its present site on Pennsylvania Avenue, Washington, facing the Capitol, to a splendid 400-acre expanse in the unimproved northern end of Rock Creek Park. The land which it is proposed to take is so diversified in soil, exposure, and other conditions that it offers a favorable opportunity for the development of an important economic as well as ornamental garden.

Camphor Growing in Florida.—Camphor growing in Florida (*A. Y. B.*, 1913, p. 472) is apparently meeting with success. A 2,000-acre camphor farm is being rapidly brought to producing state at Satsuma, near Palatka. Over 10,000 lb. of camphor were manufactured there last season. The product so far is being sent North for the manufacture of celluloid and smokeless powder.

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FORESTRY

E. J. GLASSON

Pisgah Forest.—The National Forest Reservation Commission, acting under authority of the Weeks Law (*A. Y. B.,* 1911, p. 423) purchased on May 21 the Pisgah Forest of 86,700 acres in North Carolina at the low price of $5 per acre. This land has already been developed into one of the finest forest properties in the country by the late George W. Vanderbilt. Aside from its value for watershed protection and as a national park for the East, it is proposed to make Pisgah Forest a game refuge for the preservation of the fauna of the eastern mountains. With this purchase, and others, the total area approved for purchase in the White and Appalachian mountains to June 30 was 1,104,529 acres. Operations on these reserves so far have been confined to protection from forest fires.

Fire Protection.—Eighteen states are now coöperating with the Government in protecting the watersheds of navigable streams from fire. The Agricultural Appropriation Act for the year 1914-15 made available $100,000 for continuing this work. The fire-protective organizations of the Dominion and provincial governments of Canada were greatly strengthened during the year. Wireless telegraphy was brought into use in connection with the protection of remote forest regions in western Canada. As a result of government activities, big private interests are rapidly falling in line. Railroads are coöperating much more closely and the number and strength of lumbermen's protective associations have been largely increased. Forest fires were more numerous in 1914 than for many years past, but the quickness with which the fires were discovered by the forest patrols and fire wardens, and the rapidity with which it was possible to get fire fighters to the danger points, usually resulted in the fires being quickly extinguished or confined to an area where they did but little damage. Many of the largest fires reported by the press occurred on brush land of comparatively little value.

Legislation.—Virginia created the office of state forester under the direction and control of the state Geological Commission, and provided for the establishment of forest reserves, forest investigation, forest protection and advisory assistance to private owners. In Massachusetts, a law was passed making compulsory the disposal of slash and brushwood for such distance, not exceeding 40 feet, from neighboring woodlands, highways, and railroads, and in such manner as the local forest warden shall determine. Similar provision was made for the disposal of slash and brushwood within the limits of highways and public roads. Massachusetts also provided for the appointment of a state Forest Commission of three men, with the power to spend $10,000 the first year and $20,000 each succeeding year in the purchase and reforesting of land throughout the state at a price not to exceed $5 an acre. Cities and towns are to be reimbursed for losses in taxes on such lands. The Public Domain Act of Massachusetts was also revised so as to give towns and cities in the Commonwealth the right to own and manage municipal forests. Maryland passed a roadside tree law, which makes it a misdemeanor punishable by fine for any person to cut down, trim, mutilate, or in any manner injure any roadside tree without a permit from the state Board of Forestry, except in emergency where persons or property are endangered. Provision was also made for planting roadside trees with otherwise unexpended funds, and for preventing the promiscuous placing of advertising signs and billboards along public roads. Pennsylvania passed two supplementary acts which are expected to add materially to the efficiency of the forest fire protective service of the state.

National Forests.—According to the recent statistics there are 163 national forests, mostly situated in the mountains of the West. In continuation of the work of fixing definite boundaries for those lands which should remain permanently in forests, several hundred thousand acres of land were released during the year for grazing and farming purposes, and other lands were added to the forest reserves. The total area is over 186,000,000 acres, or as much as all the New England states, New York, Pennsylvania, Delaware, Maryland and Virginia combined. It is intended to organize the lands which are now being purchased in the southern Appalachian and White Mountains into national forests. The receipts from the national forests in 1914 were: timber, $1,304,053.56; grazing, $1,002,347.59; special uses, $131,309.06. Thirty-five per cent. of the total receipts of $2,437,710.21 will be returned to the states in which the forests are located, for the benefit of their schools and roads.

Timber Supply.—Extensive surveys made by the Departments of Commerce and Agriculture indicate that the total amount of standing timber in the United States is close to 2,900 billion board ft., of which 76 per cent., or 2,200 billion ft., is privately owned, about 21 per cent., or 600 billion ft., is in the national forests, and about three per cent., or 90 billion ft., is in some other form of public ownership. The annual cut of saw timber alone is approximately 43 billion ft. The Departments are now coöperating in a constructive study of the supply and exploitation of timber, in which special attention will be given to means of utilizing low grades of lumber and by-products.

Wood Preservation.—Although chemical treatment of wood is more highly developed in Europe than in America, notable progress has been made in this country. According to a recent report by the American Wood Preservers' Association in coöperation with the Forest Service, 93 wood preserving plants in 1913 consumed over 108 million gal. of creosote oil, 26 million lb. of dry zinc chloride, and nearly four million gal. of other liquid preservatives. These plants treated over 153 million cu. ft. of timber, or about 23 per cent. more than in 1912.

Forest Schools.—Among the educational institutions which started schools of forestry during the year are the University of Montana and the Oregon Agricultural College. A division of forestry was established at the University of California. The

University of Maine introduced lecture courses in forestry in the state normal schools. The new forestry building at the New York State College of Agriculture was formally opened in May. The North Dakota State School of Forestry has been designated as a state nursery, and the president of the school as state forester. The Biltmore Forest School, established in 1898 and therefore the oldest forest school in America, has been discontinued. The Washington State Experiment Station is establishing an arboretum to be comprised of groups of each important timber tree of the Temperate Zone.

Foreign Trade.—During the fiscal year ended June 30, the United States exported forest products of all kinds amounting to $111,455,000, and imported forest products amounting to $155,152,000.

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FISHERIES

ETHEL M. SMITH

New England Vessel Fisheries.—The New England vessel fisheries, conducted principally from Boston and Gloucester, landed at those ports in 1913 a total of 162,216,786 lb. of fish, with a value of $4,983,017. The number of fares was 8,829, which was 1,180 more than in 1912, but a decrease in the catch of cod, cusk, haddock and hake brought the total down to 20,487,273 lb. less than in 1912. The mackerel fishery, since 1886 comparing very unfavorably with former years, showed some increase in 1913, and swordfish were unusually abundant.

During the first nine months of 1914 the total quantity of fish landed at Boston and Gloucester was 123,597,134 lb. For the corresponding period in 1913 the quantity was 135,033,952 lb., making a conspicuous decrease in 1914.

The otter-trawl fishery, concerning which controversy has existed between rival fishing interests since the first trawler appeared in American waters about ten years ago, was prosecuted more actively during the year but with somewhat diminished returns. Observations by Federal agents were continued, the purpose being to ascertain whether or not the charges are true, that steam trawlers destroy an unnecessarily large proportion of young fish and consequently are a menace to the fisheries in general.

Alaska Fisheries and Furs.—The curious incongruity of law which for Alaska links both land and aquatic furs with fisheries for administration purposes leads to the same association of statistics for these two products. The fisheries of Alaska in 1913 yielded products with a total value of $15,739,068, which was $3,138,412 less than in 1912. This decrease appeared also in the total investment,

which was $37,047,305, or $1,216,152 less than in 1912, and in the number of persons employed, which was 21,721 in 1913, against 24,263 in 1912. About 85 per cent. of the investment is in the salmon industry, and the principal item of decrease was in canned salmon. This decrease, however, occurred entirely in southeast and central Alaska. While the runs of red salmon in those regions were not good, and the more plentiful runs of the cheaper salmon were not extensively utilized, in western Alaska red salmon were abundant, and made possible the largest pack in the history of that section. This event bore out expectations based upon observations conducted in the Bristol Bay region for several years past by the United States Bureau of Fisheries, which have indicated that characteristically large or small runs occur at four- and five-year intervals, corresponding to the life cycles of two types of the fish. The number of salmon canneries operated in 1913 was 79, while in 1912 it was 87. The investment was $31,341,670, the number of persons employed 16,513, and the pack of canned salmon 3,739,185 cases, valued at $13,531,604.

The halibut fishery of the Pacific coast now greatly exceeds that of the Atlantic, and in Alaska is second only in importance to the salmon fishery. The investment in 1913 was $2,360,025, the number of persons engaged was 1,256, and the product was 13,687,784 lb., valued at $571,314. The Alaska cod fishery, which was in flourishing condition in 1913, yielded 11,916,900 lb. (prepared weight), worth $357,711.

Under the restrictive law governing the killing of fur seals, the catch on the Pribilof Islands in 1914 was only 2,884. Of blue fox skins there were 255, of white fox, 25. All of these skins were shipped to St. Louis, Mo., where they will be marketed. Returns for furs from the mainland of Alaska are not yet available.

Menhaden Fishery.—Over a billion menhaden, worth $2,210,000, were captured on the Atlantic coast and utilized in the factories in 1912, yielding 6,651,000 gal. of oil, worth $1,552,000, and over 88,000 tons of fertilizer, worth $2,100,000. The number of fishermen employed was 3,735. The total investment in floating and shore property was $7,908,315, representing 118 steamers, 29 gasoline motors, 274 purse seines, and 48 factories, the majority of the latter located in Virginia and North Carolina.

Mussel and Pearl-Button Industries.—The fresh water mussel fishery of the Mississippi Valley was partially canvassed with reference to the calendar year 1912. On streams tributary to the Gulf of Mexico from the Ohio southward this fishery employed in that year 4,800 persons, with boats, apparatus and accessory property worth $241,000. Nearly 20,000 tons of mussels were taken, bringing returns of $294,600 to the fishermen. Pearls found as an incident to the fishery in this region had a value of $149,000. The pearl-button business of the entire Mississippi Valley, which utilizes the shells taken in the mussel fishery, employed 8,376 persons in 1912. The capital invested in the industry was $3,110,181 and the products had a value of $8,882,471.

Sturgeon Fishery.—The principal sturgeon fishery in the United States is conducted in the Delaware River, where, though it has undergone a very great decline since 1900, certain improved conditions now appear. Artificial propagation of the sturgeon has not so far been accomplished because the spawning males and females have not been captured at the same time. The season of 1914 was the best in six or seven years, however, owing to protective legislation and improved public sentiment against exhaustive fishing. The great size of the sturgeon and the present value of the roe make this fishery extremely profitable. A boat that takes six to ten fish in a season can pay expenses. A sturgeon weighing 450 lb. captured in 1914 was worth $178 to the fisherman. Roe after being put through a sieve to be used for making caviar averaged $1.50 a pound during the season, and ranged as high as $1.75 a pound, the meat bringing prices from 12 to 20 cents a pound.

Tuna Fishery.—The long-finned tuna, tunny, or albacore of California has become a commercially important fish in the past five years, and now is established as one of the most popu-

lar canned fish products on the market. The plants are located at San Pedro and San Diego, and in 1913 packed 115,000 cases, with prospects of increase to 400,000 in 1914.

Legislation.—A bill introduced in the House of Representatives provides for Federal jurisdiction over the migratory fishes of interstate waters. The proposed enactment is regarded by fishery authorities as a remedy for the present danger to valuable fishery resources through state neglect, as in the case of the shad and alewife fisheries of the Chesapeake particularly. Another measure now pending in Congress is designed to give effect to the treaty of April 13, 1908, providing for joint international regulations for the fisheries in the contiguous waters of the United States and Canada. The Senate has passed this bill, but neglect by the House will probably result in abrogation of the treaty by Canada.

Defective legislation for protection of the Florida sponge fisheries was corrected by a bill which became effective in August, 1914, but the measure is still inoperative through lack of provision for funds. Florida was the further subject of Federal legislation in the provision for a survey of her oyster beds by the Coast and Geodetic Survey and the Bureau of Fisheries. In Maryland the state oyster law is again in controversy, the "natural rock" oystermen having forced a modification and now seeking to force the repeal of the provisions which encourage planting and look to perpetuation of the industry through culture.

Bureau of Fisheries.—Efforts in the fiscal year 1913-14 toward higher efficiency in the fish cultural work brought the largest results in the history of the Bureau, and without an increase of funds. The total number of fry of all species delivered and planted during the fiscal year ended June 30 was 3,494,991,800; fingerling, yearling and adult fish, 22,438,000; eggs (delivered to state and private hatcheries), 530,213,500. About 98 per cent. of this output was commercial fishes planted in public waters, the remainder being trouts, basses, sunfishes and others distributed for the stocking of private ponds and streams. This represents some 45 species, including the lobster. The hatcheries number 36 permanent establishments and 94 sub-hatcheries and egg-collecting stations. The Bureau is emphasizing the possibilities of fish culture in ponds on farms as an addition to home economics, and offers brood stock of suitable fishes upon application. The propagation of fresh water mussels at the biological station at Fairport, Ia., yielded some 227,500,000 larval mussels, which, as parasites upon fishes, were released to restock streams of the Mississippi system. The appropriations for the fiscal year 1914 aggregated $1,047,180. A clause in the appropriation bill for 1915 provides that no part of the lump sum appropriated for fish culture shall be used in states where, in the judgment of the Secretary of Commerce, protective laws and state cooperation are inadequate for the proper results.

STATISTICS OF AGRICULTURE

WORLD'S PRODUCTION OF PRINCIPAL CROPS, 1899–1913

(*Yearbook of the Department of Agriculture*)

	1899	1904	1909	1912	1913
Barley (bu.)	841,970,000	1,167,053,000	1,458,263,000	1,458,001,000	1,616,154,000
Corn (bu.)	2,724,100,000	3,109,252,000	3,563,226,000	4,369,742,000	3,605,422,000
Cotton (bales)	.....	21,005,175	17,756,339	24,696,670	.....
Flaxseed (bu.)	.....	107,743,000	100,943,000	130,438,000	.....
Hops (lbs.)	250,833,060	.....	128,173,048	222,019,000	167,070,000[1]
Oats (bu.)	3,212,689,000	3,536,179,000	4,312,882,000	4,608,806,000	4,631,166,000
Potatoes (bu.)	.....	4,298,049,000	5,595,567,000	5,898,531,000	.....
Rice (lbs.)	74,074,369,193	115,735,800,000	179,845,558,000	158,770,276,000	.....
Rye (bu.)	1,612,161,000	1,740,406,000	1,747,123,000	1,889,894,000	1,885,147,000
Sugar (long tons)	7,973,122	10,318,828	14,289,100	15,584,000	17,983,000[1]
Tobacco (lbs.)	.....	2,146,641,000	2,742,500,000	2,835,740,000	.....
Wheat (bu.)	2,725,407,000	3,162,340,000	3,581,519,000	3,791,875,000	4,124,900,000

[1] Preliminary.

WORLD'S PRODUCTION OF PRINCIPAL CROPS, BY COUNTRIES, 1899–1913

(Yearbook of the Department of Agriculture)

	1899 Production (000 omitted)	1904 Production (000 omitted)	1909 (000 omitted)		1912 (000 omitted)		1913 (000 omitted)	
			Acres	Production	Acres	Production	Acres	Production
BARLEY (bu.):								
Algeria	20,000	37,106	3,442	31,511	3,430	32,887	3,152	50,031
Austria-Hungary	116,672	119,451	6,014	153,582	5,613	149,120	6,007	162,609
Canada	23,797	43,872	1,864	55,398	1,582	49,378	1,613	48,319
France	47,782	38,827	1,814	46,144	1,887	49,079	1,890	48,370
Germany	139,241	135,409	4,068	160,551	3,928	159,924	4,087	188,709
Japan	44,000	80,000	3,136	87,219	3,132	90,559	3,296	101,073
Russia (European)	226,909	343,981	26,178	464,734	28,120	455,958	31,197	574,118
Spain	.....	60,000	3,480	81,579	3,298	59,994	3,869	68,772
United Kingdom	76,911	64,474	1,827	71,116	1,814	60,112	1,931	67,727
United States	73,382	139,749	7,698	173,321	7,530	223,824	7,499	178,189
CORN (bu.):								
Argentina	66,185	175,189	7,348	177,155	8,456	295,849	9,464	196,642
Austria-Hungary	145,244	89,757	8,425	210,241	8,388	224,468	9,521	226,908
Bulgaria	20,462	12,758	1,501	20,472	.....	30,000	.....	30,000
Canada	22,356	20,242	352	19,263	298	16,950	278	16,773
Egypt	30,000	30,000	1,910	65,000	1,903	60,857	.....	57,500
France	25,548	19,482	1,222	26,075	1,177	23,733	.....	22,000
Italy	88,536	90,546	4,005	99,289	3,938	98,668	3,888	108,388
Mexico	93,438	83,131	.....	170,000	.....	190,000	.....	190,000
Roumania	27,721	19,598	5,247	70,138	5,138	103,921	5,305	118,104
Russia	30,912	25,920	3,784	39,598	4,055	79,608	4,233	72,870
Servia	25,938	9,498	1,145	34,453	1,446	22,833	1,445	23,621
South Africa	2,858	8,784	.....	20,000	.....	30,830	.....	30,830
Spain	25,629	21,255	1,149	26,433	1,149	25,069	1,105	25,140
United States	2,078,144	2,467,481	98,383	2,552,190	107,083	3,124,746	105,820	2,446,988
COTTON (bales):								
Brazil	.....	220	.....	265	.....	270	.....	.....
China	.....	1,200	.....	1,200	.....	4,000	.....	.....
Egypt	.....	1,305	.....	1,045	.....	1,554	.....	.....
India	.....	3,727	.....	4,123	.....	3,677	.....	.....
Mexico	.....	253	.....	200	.....	200	.....	.....
Persia	.....	71	.....	128	.....	128	.....	.....
Peru	.....	45	.....	44	.....	88	.....	.....
Russia (Asiatic)	.....	504	.....	418	.....	666	.....	.....
Turkey (Asiatic)	.....	66	.....	131	.....	131	.....	.....
United States	.....	13,439	30,938	10,005	.....	13,703	.....	.....
HOPS (lbs.)								
Australasia	1,299	.....	.....	2,206	.....	1,855	.....	1,855
Austria-Hungary	34,313	.....	.....	20,577	.....	48,426	.....	24,020
Belgium	12,655	.....	.....	3,861	.....	7,000	.....	6,524
France	4,598	.....	.....	5,029	.....	8,758	.....	7,867
Germany	73,295	.....	.....	13,356	.....	45,334	.....	23,408
Russia	7,390	.....	.....	8,267	.....	14,084	.....	16,973
United Kingdom	74,079	.....	.....	24,022	.....	41,825	.....	28,632
United States	43,200	.....	.....	50,697	.....	53,371	.....	56,425
OATS (bu.):								
Argentina	.....	.....	1,564	31,984	2,548	69,169	2,946	115,879
Austria-Hungary	192,964	177,523	7,723	251,277	7,528	231,221	8,146	272,042
Canada	129,753	202,827	9,302	353,466	9,966	391,629	10,434	404,669
Denmark	37,500	40,000	.....	42,170	1,059	42,395	.....	43,300
France	273,305	261,264	9,702	331,183	9,840	313,656	9,881	322,131
Germany	474,179	477,852	10,649	628,712	10,841	586,987	10,967	669,231
Russia	995,305	1,081,034	46,268	1,145,387	45,974	1,067,590	47,512	1,135,748
Sweden	53,698	50,117	1,194	69,292	.....	75,900	.....	76,000
United Kingdom	169,661	191,565	4,017	184,370	4,075	180,266	3,961	181,126
United States	796,178	894,596	35,159	1,007,129	37,917	1,418,337	38,399	1,121,768
POTATOES (bu.):								
Austria-Hungary	.....	639,407	.....	682,927	4,879	683,779	.....	.....
Belgium	.....	82,846	.....	90,358	387	121,481	.....	.....
Canada	.....	74,746	.....	99,085	484	84,885	.....	.....
France	.....	375,000	.....	613,041	3,863	552,074	.....	.....
Germany	.....	1,702,803	.....	1,716,143	8,257	1,844,863	.....	.....
Italy	.....	29,000	.....	63,273	712	56,313	.....	.....
Netherlands	.....	96,695	.....	97,275	426	121,878	.....	.....
Russia	.....	1,082,723	.....	1,204,528	11,646	1,395,080	.....	.....
Spain	.....	84,000	.....	98,860	632	93,089	.....	.....
Sweden	.....	78,020	.....	61,981	.....	65,765	.....	.....
United Kingdom	.....	265,713	.....	256,752	1,208	213,783	.....	.....
United States	.....	278,985	.....	389,195	3,711	420,647	.....	.....

WORLD'S PRODUCTION OF PRINCIPAL CROPS, BY COUNTRIES—*Continued*

	1899 Production (000 omitted)	1904 Production (000 omitted)	1909 (000 omitted)		1912 (000 omitted)		1913 (000 omitted)	
			Acres	Production	Acres	Production	Acres	Production
RICE (lbs.):								
Egypt	.....	141,000	.....	653,458	.....	524,569	.....	.....
Formosa	.....	2,598,100	.....	1,446,000	.....	1,034,434	.....	.....
French Ind. China	.....	5,000,000	.....	5,000,000	.....	5,000,000	.....	.....
India	58,905,100	72,325,000	.....	86,712,000	.....	70,545,514	.....	.....
Italy	1,122,368	760,500	.....	647,000	.....	598,100	.....	.....
Japan	13,481,647	18,658,700	.....	16,375,000	.....	15,777,680	.....	.....
Java and Madura	.....	6,431,000	.....	7,566,000	.....	7,616,958	.....	.....
Korea	.....	3,200,000	.....	3,200,000	.....	3,192,879	.....	.....
Madagascar	.....	.....	.....	953,000	.....	953,000	.....	.....
Philippine Islands	.....	544,000	.....	1,018,000	.....	717,441	.....	.....
Siam	.....	6,824,000	.....	6,824,000	.....	6,824,000	.....	.....
Spain	385,000	394,600	.....	282,065	.....	332,365	.....	.....
United States	136,990	619,400	720	702,709	723	721,764	827	1,127,530
RYE (bu.):								
Austria-Hungary	125,315	138,009	7,820	164,898	7,910	170,420	7,753	164,535
Belgium	22,000	22,000	636	23,154	650	21,342	.....	21,385
Bulgaria	10,000	13,000	498	6,906	531	10,000	.....	9,000
Canada	2,823	2,995	91	1,715	127	2,428	119	2,300
Denmark	18,000	18,000	.....	18,922	607	18,473	.....	18,736
Finland	.....	.....	.....	12,085	.....	12,344	.....	12,104
France	68,255	53,343	3,031	54,934	2,969	48,890	2,958	52,677
Germany	341,551	396,075	15,149	446,763	15,489	456,600	15,849	481,169
Netherlands	11,500	14,000	553	17,652	564	16,094	562	15,265
Russia	911,631	1,008,381	71,983	896,833	70,795	1,042,072	74,990	1,002,468
Spain	15,000	19,000	2,058	34,901	1,944	18,867	1,917	27,916
Sweden	21,436	20,960	998	25,728	989	23,323	989	23,000
United States	23,962	27,242	2,196	29,520	2,117	35,664	2,557	41,381
SUGAR, CANE (long tons):								
Australia	191	113	.....	165	.....	190	.....	130
Brazil	151	197	.....	244	.....	235	.....	204
Cuba	345	1,040	.....	1,521	.....	1,896	.....	2,429
India	10	15	.....	1,872	.....	2,451	.....	2,552
Java	689	885	.....	1,222	.....	1,384	.....	1,458
Mauritius	186	215	.....	192	.....	167	.....	213
United States	299	673	.....	1,095	.....	1,184	.....	983
BEET (longtons):								
Austria-Hungary	.....	.....	.....	1,365	.....	1,125	.....	1,869
Belgium	244	203	.....	243	.....	231	.....	276
France	830	804	.....	701	.....	448	.....	851
Germany	1,721	1,927	.....	2,046	.....	1,474	.....	2,658
Netherlands	.....	.....	.....	194	.....	237	.....	311
Russia	776	1,206	.....	1,109	.....	1,809	.....	1,200
United States	32	208	.....	380	.....	535	.....	618
TOBACCO (lb.):								
Austria-Hungary	.....	111,815	.....	190,274	.....	188,189	.....	.....
Brazil	.....	52,832	.....	64,654	.....	54,468	.....	.....
Cuba	.....	42,421	.....	59,323	.....	42,030	.....	.....
Dutch East Indies	.....	90,125	.....	134,100	.....	182,427	.....	.....
Germany	.....	75,797	.....	62,120	.....	85,741	.....	.....
India	.....	450,000	.....	450,000	.....	450,000	.....	.....
Japan	.....	106,075	.....	91,850	.....	93,696	.....	.....
Philippine Islands	.....	33,100	.....	40,258	.....	65,219	.....	.....
Russia	.....	204,298	.....	207,451	.....	266,197	.....	.....
Santo Domingo	.....	.....	.....	30,000	.....	18,000	.....	.....
Turkey (Europ.)	.....	.....	.....	49,177	.....	68,894	.....	.....
United States	.....	665,461	.....	1,065,765	.....	979,355	.....	.....
WHEAT (bu.):								
Argentina	92,167	120,598	14,981	156,162	17,042	166,190	17,096	198,414
Austria-Hungary	191,842	203,998	11,945	186,085	12,942	257,347	.....	232,207
Australasia	56,212	84,627	5,514	73,612	7,643	81,894	7,529	100,754
Canada	59,960	76,427	7,750	166,744	10,997	224,159	11,016	231,717
France	366,079	296,606	16,299	356,193	16,238	336,284	16,169	321,571
Germany	141,369	139,803	4,525	137,999	4,759	160,224	4,878	171,075
India	232,585	357,162	26,235	285,189	31,141	370,515	29,569	358,388
Italy	137,912	150,400	11,635	190,378	11,751	165,720	11,842	214,405
Roumania	26,064	53,738	4,173	56,751	5,114	88,924	4,011	83,236
Russia	487,234	706,706	65,414	783,270	70,736	720,042	74,512	962,587
Spain	88,000	110,000	9,347	144,105	9,625	109,783	9,644	112,401
United Kingdom	69,325	39,083	1,867	65,188	1,970	59,162	1,796	58,436
United States	547,304	552,400	44,261	683,530	45,814	730,267	50,184	763,380

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, 1899–1914

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899 (census)	1904	1909 (census)	1912	1913	1914[1]
TOTAL:						
Barley (bu.)	119,635	139,749	173,321	223,824	178,189	194,953
Buckwheat (bu.)	11,234	15,008	14,849	19,249	13,833	16,881
Corn (bu.)	2,666,324	2,467,481	2,552,190	3,124,746	2,446,988	2,672,804
Cotton (500-lb. bales)[2]	9,345	13,438	10,005	13,703	14,156	15,966
Flaxseed (bu.)	19,979	23,401	19,513	28,073	17,853	15,559
Hay (tons)	57,002	60,696	64,938	72,691	64,116	70,071
Hops (lbs.)	49,209	49,358	50,697	53,371	56,425[3]	63,085
Oats (bu.)	943,389	894,596	1,007,129	1,418,337	1,121,768	1,141,060
Potatoes (bu.)	273,318	332,830	389,195	420,647	331,525	405,921
Rice (bu.)	.....	21,096	24,368	25,054	25,744	23,649
Rye (bu.)	25,569	27,242	29,520	35,664	41,381	42,779
Sugar (long tons)	680	988	1,586	1,884	922	777[4]
Tobacco (lbs.)	868,113	660,461	1,055,765	962,855	953,734	1,034,679
Wheat (bu.)	658,534	552,400	683,350	730,267	763,380	891,017
AVERAGE PER ACRE:						
Barley (bu.)	26.8	27.2	22.5	29.7	23.8	25.8
Buckwheat (bu.)	13.9	18.9	16.9	22.9	17.2	21.3
Corn (bu.)	28.1	26.8	25.9	29.2	23.1	25.8
Cotton (lbs.)	184.1	204.9	154.3	193.2	182.0	207.9
Flaxseed (bu.)	9.5	10.3	9.4	9.8	7.8	8.3
Hay (tons)	1.09	1.52	1.42	1.47	1.31	1.43
Oats (bu.)	31.9	32.1	28.4	37.4	29.2	29.7
Potatoes (bu.)	93.0	110.4	106.1	113.4	90.4	109.5
Rice (bu.)	.....	31.9	33.8	34.7	31.1	34.1
Rye (bu.)	12.4	15.2	13.4	16.8	16.2	16.8
Tobacco (lbs.)	788.5	819.0	815.3	785.5	784.3	845.7
Wheat (bu.)	12.5	12.5	15.4	15.9	15.2	16.6

[1] Estimate issued December 15. [2] Excluding linters. [3] Unofficial estimate. [4] Preliminary.

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES, 1899–1913

(*Yearbook of the Department of Agriculture*)

	1899		1904		1909		1912		1913	
	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)
BARLEY (bu.):										
California	26	22,239	22.7	28,091	26.5	31,270	30.0	41,760	26.0	33,150
Idaho	35	405	37.4	1,707	40.0	2,480	43.5	6,916	42.0	7,560
Iowa	26	12,011	27.8	13,552	22.0	10,890	31.0	14,570	25.0	10,000
Minnesota	25	8,144	28.4	32,123	23.6	31,600	28.2	42,018	24.0	34,800
N. Dakota	24	5,909	28.1	17,518	21.0	20,727	29.9	35,162	20.0	25,500
S. Dakota	23	2,410	28.0	9,787	19.5	19,910	26.0	23,062	17.5	16,765
Washington	35	1,410	34.8	5,824	39.5	7,189	43.0	7,869	40.5	7,290
Wisconsin	30	7,670	30.0	14,941	28.0	24,248	29.4	24,843	25.0	18,125
CORN (bu.):										
Alabama	12.0	33,015	15.0	41,877	13.5	30,696	17.2	54,180	17.3	55,360
Georgia	10.0	32,494	11.9	47,234	13.9	39,375	13.8	53,958	15.5	63,023
Illinois	36.0	247,150	36.5	344,133	36.9	390,219	40.0	426,320	27.0	282,150
Indiana	38.0	141,852	31.5	143,396	40.0	195,496	40.3	199,364	36.0	176,400
Iowa	31.0	242,249	32.6	303,039	31.5	341,750	43.0	432,021	34.0	338,300
Kansas	27.0	237,621	20.9	134,609	19.9	154,652	23.0	174,225	3.2	23,424
Kentucky	21.0	55,392	26.9	86,815	29.0	83,348	30.4	109,440	20.5	74,825
Michigan	25.0	26,476	28.6	36,990	35.4	52,907	34.0	55,250	33.5	56,112
Minnesota	33.0	31,171	26.9	41,809	34.8	67,897	34.5	78,177	40.0	96,000
Mississippi	16.0	39,043	19.1	39,709	14.5	28,429	18.3	56,840	20.0	63,000
Missouri	26.0	162,915	26.2	151,522	26.4	191,427	32.0	243,904	17.5	129,062
Nebraska	28.0	224,373	32.8	260,942	24.8	180,133	24.0	182,616	15.0	114,150
Ohio	36.0	99,048	32.5	99,628	39.5	157,513	42.8	174,410	37.5	146,250
Pennsylvania	32.0	40,255	34.0	48,535	32.0	41,494	42.5	61,582	39.0	57,057
S. Dakota	26.0	30,017	28.1	43,855	31.7	55,559	30.6	76,347	25.5	67,320
Tennessee	20.0	59,997	25.0	80,890	22.0	67,682	26.5	88,298	20.5	68,675
Texas	18.0	81,151	22.6	136,702	15.0	75,499	21.0	153,300	24.0	163,200
Wisconsin	35.0	41,686	29.7	45,119	33.0	49,163	35.7	58,262	40.5	66,825

PRODUCTION OF PRINCIPAL CROPS IN THE UNITED STATES, BY STATES, 1899–1913—*Continued*

	1899		1904		1909		1912		1913	
	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)	Average per Acre	Total (000 omitted)
COTTON (bales):										
Alabama	.39	1,176	.36	1,448	.28	1,024	.....	1,342	.....	1,494
Georgia	.39	1,378	.41	1,887	.36	1,804	.....	1,777	.....	2,315
Mississippi	.43	1,247	.44	1,798	.31	1,083	.....	1,046	.....	1,307
N. Carolina	.48	629	.46	703	.42	600	.....	866	.....	790
Oklahoma	.50	109	.49	335	.29	544	.....	1,021	.....	830
S. Carolina	.44	1,035	.43	1,151	.42	1,099	.....	1,182	.....	1,374
Texas	.48	3,363	.36	3,145	.25	2,522	.....	4,880	.....	3,943
HAY (tons):										
Iowa	1.34	5,025	1.62	5,074	1.64	5,983	1.40	4,952	1.48	4,440
Michigan	1.22	1,650	1.25	2,658	1.30	3,403	1.33	3,185	1.05	2,520
New York	1.04	4,530	1.36	6,480	1.05	5,002	1.25	5,900	1.14	5,358
Ohio	1.30	2,133	1.43	3,880	1.43	4,033	1.31	4,026	1.30	3,848
Pennsylvania	1.20	3,068	1.45	4,499	1.20	3,742	1.43	4,537	1.32	4,146
Wisconsin	1.47	1,946	1.67	2,959	1.53	3,625	1.60	3,600	1.62	3,848
OATS (bu.):										
Illinois	38.0	127,278	32.0	117,341	36.6	150,386	43.3	182,726	23.8	104,125
Iowa	33.0	126,985	32.0	122,323	27.0	128,198	44.2	217,818	34.5	168,360
Ohio	36.0	32,945	40.9	49,733	32.5	57,591	44.0	93,280	30.2	54,360
Minnesota	32.0	52,688	39.2	85,178	33.0	93,898	41.7	122,932	37.8	112,644
N. Dakota	30.0	17,987	37.4	31,010	32.0	65,887	41.4	95,220	25.7	57,825
Wisconsin	36.0	67,687	35.0	86,734	35.0	71,336	37.3	84,746	36.5	83,038
POTATOES (bu.):										
Iowa	100.0	19,847	136.0	22,354	89.0	12,905	109.0	18,966	48.0	7,200
Maine	139.0	6,514	215.0	19,657	225.0	29,250	198.0	23,166	220.0	28,160
Michigan	66.0	11,430	121.0	31,806	105.0	36,540	105.0	36,750	96.0	33,600
Minnesota	96.0	10,888	102.0	13,995	115.0	18,400	135.0	33,075	110.0	30,250
New York	88.0	28,707	93.0	41,129	120.0	52,560	106.0	38,160	74.0	26,640
Ohio	71.0	11,505	98.0	16,029	93.0	16,926	112.0	20,832	64.0	10,240
Pennsylvania	85.0	15,243	106.0	27,174	78.0	23,790	109.0	28,885	88.0	23,320
Wisconsin	103.0	16,102	126.0	31,499	102.0	26,724	120.0	34,920	109.0	32,155
RICE (bu.):										
Arkansas	.....	.....	.....	.....	40.0	1,120	37.5	3,405	36.0	3,769
Louisiana	.....	.....	30.4	11,445	33.8	12,675	33.5	18,812	29.0	11,760
Texas	.....	.....	35.5	8,314	34.0	9,894	35.5	9,429	32.0	9,696
RYE (bu.):										
Indiana	13.0	464	14.6	478	16.5	940	14.5	928	15.2	1,566
Michigan	14.0	1,097	13.2	1,752	15.5	5,425	13.3	4,921	14.3	5,362
Minnesota	18.0	1,112	17.7	1,648	19.0	2,280	23.0	6,026	19.0	5,700
New Jersey	15.0	1,000	17.5	1,224	16.3	1,288	17.5	1,260	18.0	1,260
New York	16.0	3,633	14.8	2,177	17.0	2,720	16.5	2,112	17.2	2,288
Pennsylvania	15.0	3,936	15.5	5,367	15.3	5,508	17.5	4,935	17.5	4,900
Wisconsin	15.0	3,073	16.2	4,905	16.3	4,727	18.3	6,240	17.5	7,438
TOBACCO (lbs.):										
Connecticut	.....	.....	1,685	21,407	1,650	22,110	1,700	29,750	1,550	28,520
Indiana	.....	.....	691	4,314	950	19,000	800	14,960	750	11,925
Kentucky	.....	.....	827	229,417	835	350,700	780	343,980	760	281,200
Maryland	.....	.....	621	19,913	710	17,750	660	17,160	740	18,500
N. Carolina	.....	.....	685	98,618	600	144,000	620	110,980	670	167,500
Ohio	.....	.....	849	50,793	925	83,250	920	79,304	750	61,425
Pennsylvania	.....	.....	1,289	18,635	985	30,732	1,450	64,090	1,200	46,680
S. Carolina	.....	.....	703	8,185	800	32,000	700	24,500	760	33,288
Tennessee	.....	.....	730	34,823	730	53,290	660	72,600	720	64,800
Virginia	.....	.....	725	96,487	775	120,125	600	112,200	770	154,000
W. Virginia	.....	.....	710	2,901	875	12,600	760	12,008	680	10,200
Wisconsin	.....	.....	1,282	52,473	1,180	37,170	1,290	54,438	1,180	50,740
WHEAT (bu.):										
Illinois	10.0	12,665	13.8	21,542	17.4	37,831	8.3	9,819	18.7	41,888
Indiana	9.8	25,361	9.2	12,525	15.3	33,936	8.0	10,080	18.5	39,775
Kansas	9.8	36,468	12.4	65,019	14.4	77,564	15.5	92,290	13.0	86,983
Michigan	8.4	13,335	9.8	6,873	18.8	16,026	10.0	7,000	15.3	12,776
Minnesota	13.4	68,223	12.8	68,344	16.8	57,094	15.5	67,038	16.2	68,040
Missouri	9.9	11,398	17.7	27,163	14.7	29,837	12.5	23,750	17.1	39,586
Nebraska	10.3	20,791	13.6	31,453	18.8	47,686	17.6	55,052	18.6	62,325
N. Dakota	12.8	51,758	11.8	53,892	13.7	116,782	18.0	143,820	.....	78,855
Ohio	14.2	39,998	11.5	17,563	15.9	30,664	8.0	9,760	18.0	35,100
Pennsylvania	13.6	20,472	14.1	21,857	17.0	21,564	18.0	22,320	17.0	21,862
Washington	22.7	21,710	22.2	32,140	23.2	40,920	23.5	53,728	27.0	53,300

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS, 1899–1914

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899	1904	1909	1912	1913	1914
IMPORTS						
Total, excluding Forest Products	$355,514	$461,434	$638,612	$783,457	$815,138	.....
Animal matter:						
Cattle	2,320	310	1,999	4,805	6,641	18,697
Horses	551	1,460	2,007	1,923	2,126	2,605
Sheep	1,200	815	502	157	90	532
Other animals including fowls	265	543	528	694	729	2,878
Butter	3	34	141	237	304	1,753
Cheese	1,563	3,284	5,866	8,807	9,185	11,011
Cream	.....	.....	.....	923	1,068	1,550
Milk	52	32	23	61	136	1,089
Eggs	21	61	36	147	.....	1,060
Silk	32,479	46,100	79,903	69,541	84,915	100,930
Wool	8,322	24,813	45,171	33,078	35,580	53,191
Packing-house products:						
Hides and skins	41,988	52,006	78,487	102,476	117,386	120,290
Meat	467	935	796	1,358	1,425	17,079
Vegetable matter:						
Cocoa	5,360	9,174	15,222	15,931	17,389	20,798
Chocolate	201	426	339	658	787	706
Coffee	55,275	69,551	79,112	117,816	118,963	110,725
Vegetable fibers:						
Cotton	5,013	8,541	13,622	20,217	22,987	19,457
Flax	1,306	2,541	2,542	3,778	3,950	2,870
Hemp	477	869	799	1,100	1,484	1,564
Jute	2,296	4,104	7,216	7,183	9,280	11,174
Manila	6,211	11,423	7,156	8,000	12,630	9,780
Sisal grass	9,211	15,935	10,215	11,866	17,804	25,861
Fruits	15,586	18,964	22,446	29,549	28,657	33,638
Corn	.....	10	189	47	491	7,917
Oats	.....	57	2,651	1,053	289	7,886
Wheat	.....	7	36	2,212	560	1,762
Wheat flour	4	164	446	665	454	364
Hay	115	914	60	6,473	1,514	1,634
Hops	591	1,374	1,337	2,231	2,853	2,791
Distilled spirits	3,145	4,957	7,676	6,463	7,374	7,264
Malt liquors	1,487	2,313	3,215	3,279	3,290	2,967
Wines	6,590	9,391	12,276	9,591	10,079	10,117
Nursery stock	768	1,496	1,946	2,999	3,209	3,603
Nuts	2,727	5,471	8,664	15,828	13,980	19,783
Oils, vegetable	5,300	10,225	17,554	26,834	28,130	32,314
Rice, rice meal, etc	3,930	3,073	4,698	4,435	5,916	7,474
Sago, tapioca, etc	.....	695	1,396	1,674	2,187	1,642
Seeds	1,221	3,587	5,958	25,641	17,426	20,084
Spices	2,782	4,366	5,348	5,974	6,187	5,596
Sugar	94,964	71,915	96,554	115,515	103,640	101,486
Tea	9,675	18,229	18,562	18,207	17,434	16,735
Tobacco	9,900	16,939	25,405	31,925	35,939	35,044
Vegetables	2,178	7,008	12,999	18,544	11,359	15,134
EXPORTS						
Total, excluding Forest Products	792,811	859,160	903,238	1,048,433	1,123,021	1,114,079
Animal matter:						
Cattle	30,516	42,256	18,046	8,870	1,177	647
Horses	5,444	3,189	3,386	4,764	3,960	3,389
Mules	516	412	472	732	733	691
Sheep	853	1,954	365	626	605	535
Swine	227	53	144	159	151	134
Other live animals[1]	322	111	114	294	451	408
Butter	3,263	1,768	1,268	1,468	872	877
Cheese	3,316	2,452	857	898	441	414
Milk, condensed	1,049	1,367	1,375	1,651	1,432	1,341
Eggs	641	396	1,199	3,395	4,391	3,734
Packing-house products:						
Beef, canned	3,503	5,882	1,645	1,303	857	462
Beef, cured	2,671	3,281	3,472	2,832	2,489	2,290
Beef, fresh	23,545	26,841	12,698	1,596	902	789
Hides and skins	929	3,246	1,271	3,158	3,449	2,807
Lard	42,208	46,347	52,712	52,090	55,860	54,403
Lard compounds	.....	3,581	6,115	5,183	8,242	5,489
Pork, cured	7,917	56,268	54,046	55,239	5,699	4,897
Pork, fresh	2,722	1,669	938	297	310	359

[1] Including fowls.

IMPORTS AND EXPORTS OF IMPORTANT AGRICULTURAL PRODUCTS—*Continued*

(*Yearbook of the Department of Agriculture*)

(000 omitted)

	1899	1904	1909	1912	1913	1914
EXPORTS—*Continued*						
Vegetable matter:						
Cotton	$210,080	$372,049	$417,390	$565,849	$547,357	$610,475
Fruits	7,757	20,348	16,079	30,354	36,345	31,031
Barley	1,375	6,292	4,672	1,267	11,412	4,253
Buckwheat	846	19	137	.....	2	695
Corn	68,977	30,071	25,194	28,957	28,801	7,008
Oats	9,787	475	804	1,135	13,206	758
Rye	5,936	440	1,049	4	1,260	1,555
Wheat	104,269	35,850	68,094	28,477	89,036	87,953
Cornmeal	1,775	1,691	1,549	1,519	1,445	1,186
Oatmeal	1,295	463	516	376	1,515	569
Wheat flour	73,093	68,894	51,157	50,999	53,172	54,454
Total grain products	273,999	76,215	160,076	123,095	210,524	164,846
Hops	3,626	2,116	1,271	4,648	4,765	6,954
Distilled spirits	2,080	1,691	1,883	2,274	2,218	2,276
Malt liquors	1,888	854	1,010	1,161	1,371	1,485
Oil cake	14,548	17,069	25,836	28,228	29,444	21,668
Vegetable oils	13,809	12,618	23,098	26,908	24,044	16,251
Seeds	5,079	2,583	5,256	2,898	3,565	3,191
Sugar	440	532	2,785	3,681	1,681	1,840
Tobacco	25,467	29,640	30,902	43,251	49,354	53,964
Vegetables	2,799	2,603	3,760	6,544	7,354	6,936

AVERAGE PRICES OF AGRICULTURAL PRODUCTS, 1899–1914

(*Yearbook of the Department of Agriculture*)

	1899	1904	1909	1912	1913	1914
FARM CROPS:[1]						
Barley (bu.)	$0.40	$0.42	$0.55	$0.50	$0.54	$0.54
Beans (bu.)[2]	.....	1.72–2.20	2.25–2.75	2.55–3.10	2.15–2.60	.....
Buckwheat (bu.)	0.56	0.62	0.70	0.66	0.76	0.76
Corn (bu.)	0.30	0.44	0.60	0.49	0.69	0.64
Cotton (lbs.)	0.071	.....	0.139	0.119	0.122	0.068
Flaxseed (bu.)	.....	0.99	1.52	1.15	1.20	1.26
Hay (tons)	7.27	8.72	10.62	11.79	12.43	11.12
Hops (lbs.)[3]	0.12–0.18	0.32–0.41	0.12–0.39	0.22–0.56	0.17–0.48	.....
Oats (bu.)	0.24	0.31	0.40	0.32	0.39	0.44
Potatoes (bu.)	0.39	0.45	0.54	0.50	0.69	0.49
Rice (bu.)	.....	0.65	0.79	0.94	0.86	0.92
Rye (bu.)	0.51	0.69	0.74	0.66	0.63	0.86
Tobacco (lbs.)	.....	0.081	0.101	0.108	0.128	0.098
Wheat (bu.)	0.58	0.93	0.99	0.76	0.80	0.99
LIVE STOCK:[4]						
Cattle:						
Beef[5]	2.00–7.00	1.70–7.65	2.90–9.50	1.75–11.25	3.00–10.25	.....
Milch cows	29.66	29.21	32.36	39.39	45.02	53.94
Other cattle	22.79	16.32	17.49	21.20	26.36	31.13
Horses	37.40	67.93	95.64	105.94	110.77	109.32
Mules	44.96	78.88	107.84	120.51	124.31	123.85
Sheep	2.75	2.59	3.43	3.46	3.94	4.04
Swine	4.40	6.15	6.55	8.00	9.86	10.40
LIVE STOCK PRODUCTS:						
Butter (lbs.)[6]	0.16½–0.28	0.17½–0.28	0.25–0.37	0.26–0.41	0.26–0.38	.....
Eggs (doz.)[7]	0.12½–0.35	0.16–0.47	0.19–0.55	0.20½–0.60	0.20–0.65	.....

[1] Average farm prices Dec. 1. [2] Average wholesale prices at Boston. [3] Average wholesale prices at New York. [4] Prices per head, Jan. 1. [5] Average wholesale prices of inferior to prime beef per 100 lbs. at Chicago. [6] Average wholesale prices of extra creamery butter at New York. [7] Average wholesale prices of average best fresh eggs at New York.

LIVE STOCK IN THE UNITED STATES, 1899–1914

(*Yearbook of the Department of Agriculture*)
(000 omitted)

	Number Jan. 1, 1900	Number Jan. 1, 1905	Number Jan. 1, 1910	Number Jan. 1, 1913	Number Jan. 1, 1914
MILCH COWS:					
Total, U. S.	16,292	17,572	21,801	20,497	20,737
Illinois	1,021	995	1,232	1,007	1,017
Iowa	1,263	1,335	1,570	1,337	1,350
Michigan	463	556	936	798	798
Minnesota	672	836	1,125	1,129	1,163
Missouri	659	569	925	789	789
New York	1,487	1,721	1,771	1,465	1,465
Ohio	780	790	947	869	886
Pennsylvania	970	1,086	1,140	943	943
Texas	693	838	1,137	1,034	1,065
Wisconsin	1,003	1,095	1,506	1,504	1,549
OTHER CATTLE:					
Total, U. S.	27,610	43,669	47,279	36,030	35,855
California	604	1,122	1,120	1,454	1,410
Illinois	1,303	1,666	1,974	1,228	1,216
Iowa	2,178	3,467	3,611	2,607	2,555
Kansas	2,159	2,682	3,260	1,778	1,565
Minnesota	564	941	1,228	1,139	1,173
Missouri	1,387	1,490	2,165	1,444	1,386
Nebraska	1,521	2,379	3,040	1,902	1,883
Oklahoma	283	1,284	1,637	1,155	1,097
Texas	4,352	8,249	7,131	5,022	5,173
Wisconsin	595	1,148	1,081	1,135	1,158
HORSES:					
Total, U. S.	13,538	17,058	21,040	20,567	20,962
Illinois	983	1,232	1,655	1,482	1,497
Indiana	577	636	847	846	854
Iowa	979	1,144	1,447	1,568	1,584
Kansas	732	880	1,187	1,099	1,110
Missouri	724	809	1,005	1,084	1,095
Nebraska	658	796	1,045	1,027	1,048
Ohio	640	785	977	892	901
Oklahoma	50	354	804	758	766
Texas	1,125	1,277	1,369	1,181	1,216
MULES:					
Total, U. S.	2,086	2,889	4,123	4,386	4,449
Alabama	132	161	253	270	278
Georgia	157	201	248	310	319
Mississippi	164	219	290	280	286
Tennessee	139	163	290	276	270
Texas	260	391	702	724	753
SHEEP:					
Total, U. S.	41,883	45,170	57,216	51,482	49,719
Arizona	1,024	816	1,020	1,570	1,601
California	2,001	2,180	2,372	2,603	2,551
Colorado	2,185	1,458	1,729	1,737	1,668
Idaho	2,658	2,978	4,248	2,951	2,981
Michigan	1,389	1,759	2,151	2,139	2,118
Missouri	597	770	957	1,650	1,568
Montana	3,884	5,638	5,747	5,111	4,293
New Mexico	3,973	2,856	4,729	3,300	3,036
Ohio	2,839	2,601	3,203	3,435	3,263
Oregon	2,446	2,546	2,581	2,644	2,670
Texas	2,416	1,617	1,909	2,073	2,052
Utah	2,370	2,344	3,177	1,990	1,970
Wyoming	2,840	3,267	7,316	4,472	4,472
SWINE:					
Total, U. S.	37,079	47,321	47,782	61,178	58,933
Georgia	.....	1,396	1,647	1,888	1,945
Illinois	.....	3,747	3,772	4,315	4,358
Indiana	.....	2,631	2,578	3,709	3,969
Iowa	.....	7,290	6,485	8,720	6,976
Kansas	.....	1,949	1,942	2,611	2,350
Missouri	.....	3,110	2,714	4,087	4,250
Nebraska	.....	2,888	3,201	3,798	3,228
Ohio	.....	2,701	2,047	3,399	3,467
Texas	.....	2,525	3,205	2,493	2,618
Wisconsin	.....	1,653	1,651	2,030	2,050

AGRICULTURAL STATISTICS FROM CENSUS OF 1910

(*Yearbook of the Department of Agriculture*)

	Total	Percentage
Land area (acres)	1,903,290,000	.....
Farms (acres)	878,798,000	46.2
Improved (acres)	478,452,000	54.5
Woodland (acres)	190,866,000	21.7
Other unimproved (acres)	209,481,000	23.8
Number of farms	6,361,502	.....
Average area per farm (acres)	138.1	.....
Average area of improved land per farm (acres)	75.2	.....
Farms under 20 acres	.....	13.2
Farms of 20 to 99 acres	.....	44.8
Farms of 100 to 499 acres	.....	39.2
Farms of 500 to 1,000 acres and over	.....	2.8
Value of crops of Continental U. S.	$5,487,000,000	.....
Value of all farm property, and per cent. increase	$40,991,374,000	200.5
Value of land	$28,475,674,000	218.1
Value of buildings	$6,325,452,000	177.8
Value of implements and machinery	$1,265,150,000	168.7
Value of animals, poultry and bees	$4,925,098,000	160.1
Value of all property represented in—		
Lands	.....	69.5
Buildings	.....	15.4
Implements and machinery	.....	3.1
Animals, poultry and bees	.....	12.0
Average value per farm of—		
All property	$6,444	.....
Lands and buildings only	$5,471	.....
Average value of land per acre	$14.96	.....
FARM EXPENSES		
Labor:		
Farms reporting	2,922,288	.....
Per cent. of all farms	.....	45.9
Cash expended	$521,727,000	.....
Rent and board furnished	$129,878,000	.....
Feed:		
Farms reporting	2,368,905	.....
Per cent. of all farms	.....	37.2
Amount expended	$299,839,000	.....
Fertilizer:		
Farms reporting	1,823,032	.....
Per cent. of all farms	.....	28.7
Amount expended	$114,884,000	.....
NATIVITY OF FARM OPERATORS		
Number of farms operated by—		
Native white	4,771,063	.....
Foreign white	669,556	.....
Negro and other non-white	920,883	.....
Percentage of operators who own their farm among—		
Native white	.....	66.2
Foreign white	.....	81.1
Negro and other non-white	.....	26.1

XVIII. THE MINERAL INDUSTRIES

MINING AND ORE DRESSING

CHARLES E. LOCKE

The Mining Industry.—After enjoying fair prosperity during 1913, the mining industry started off hopefully at the beginning of 1914. Mexico was still in an unsettled condition and has remained so throughout the year, most of its mines still continuing idle. However, the operators are waiting, more or less patiently, ready to start again as soon as conditions are sufficiently settled. In the United States, conditions were not bad during the first half of the year, but with the outbreak of the war in Europe there came a general demoralization of the industry. The large copper mines curtailed their output by 50 per cent., inaugurated economies, and are postponing construction and development work as much as possible. A measure of conditions is given by the shipments of iron ore from the Lake Superior District during the period from Jan. 1 to Oct. 1; they were 26,709,413 tons, against 39,273,417 tons during the same period in 1913. The price of copper has fallen as low as 11 cents per pound, silver to below 50 cents per ounce, and zinc, lead, and other metals in proportion, except that metals like antimony, manganese, platinum and mercury, which are not produced in the United States in sufficient quantity to supply domestic demand, have advanced in price. Gold of course was not affected, except that the cost of production was slightly increased by the rise in price of cyanide due to anticipation of a shortage in case the German supply should be cut off.

Mining Methods.—Mining operations have been distinguished by no revolution of methods but rather by many advances in the way of economies and improvements. For example, in the Mesabi iron district of Minnesota, lumber, when used in the mines, is now usually creosoted to prolong its life. Wooden shaft timbers are being replaced by steel or reinforced concrete, and concrete lining or lagging is coming into use. Machine undercutters, similar to those used for coal, have been used successfully in the soft Mesabi ore, and mechanical loaders show an economy over hand labor. There is a tendency in many districts where large ore bodies are mined to utilize waste rock for filling and supporting excavations, wherever practicable, in place of the more expensive square-set timber method. The field for "one-man" hammer drills has been pretty well defined, and except in some cases where special conditions exist, the old-style piston drills appear to be outclassed. At Butte, Mont., it will be possible in the near future to make comparisons between three large new hoisting engines, driven respectively by steam, compressed air and electricity.

Among big mines, the Chuquicamata deposit in Chile had in sight at the beginning of the year over 200 million tons of copper ore averaging two per cent. copper and was still adding to this reserve. The big gold mines near Juneau, Alaska, are developing satisfactorily, and the White Pine Copper Co. in Michigan is expected to start regular operations shortly. There appears to be a neglect of small mines for the large ones, and there undoubtedly exist many small mines which will pay when operated by one man in the capacity of owner-manager, which will not pay under a stock company with its attendant extra expense.

Labor.—An improvement in the condition of miners is indicated by the government report of 3.54 fatal accidents per 1,000 men in 1913, 3.91 per 1,000 in 1912, and 4.19 per 1,000 in 1911. The big mines and many smaller ones are devoting attention to the "safety-first" movement, and are also inaugurating systems of bonuses, annuities and pensions. The strike of the Lake Superior copper miners ended in failure (see XVI, *Labor*), and that of the coal miners in Colorado, with its attendant martial law and loss of life, was ended by vote of the strikers in December (see XVI, *Labor*). Both strikes were claimed by the mine operators to be due to attempts to unionize the men. An interesting struggle in progress is that between rival unions in Butte. The result of the conflict so far has been to cause the operators to open the mines of the district to both union and non-union labor alike.

Government Lands.—Congress has finally passed a bill which will allow the rich coal lands of Alaska to be opened up under competitive bidding for leases in blocks of 40 acres or multiples of that amount. These leases are on a royalty basis of at least two cents per ton and are to run not more than 50 years. Oil, phosphate and potash lands which have been withdrawn from entry by the Government are still awaiting the passage of a bill to allow them to be opened up and put to use. (See also I, *American History;* VIII, *Alaska;* X, *Public Lands*).

Ore Dressing.—In ore dressing the problem of saving values in tailings which now go to waste is receiving the most attention. Oil flotation methods are hailed as offering the most promising results, but in the case of copper ores, leaching is also found to be a satisfactory adjunct. Oil flotation has been successfully applied to the lead tailings in southeast Missouri, and experimental work is under way in the zinc district of southwest Missouri. The 600-ton experimental plant of the Inspiration Copper Co. is reported to be working satisfactorily on low grade "porphyry copper" ore and a large mill is in progress of construction. In fact everywhere oil flotation is being investigated for treating original ores, for recovering extra values from tailings, or for enriching concentrates. The legal atmosphere of the oil flotation process has been somewhat cleared by a higher court decision in favor of Hyde against the Minerals Separation Co. (See also *Zinc, infra*). Wet concentration of iron ores in the Mesabi district is on the increase and is being extended to the Cyuna district. A new process of separation, using a heavy solution of antimony bromide, is being tried out on iron ore at Rich Patch, Va. The first unit of 1,500 tons of the big Alaska Gold Company's stamp mill near Juneau, Alaska, will start early in 1915, and it is expected that the whole 6,000-ton plant will be in complete running order by June 1, 1915.

Prof. R. H. Richards visited various districts during the year, and summarizes important developments as follows: Lake Superior copper district, tendency to finer grinding, leaching of tailings, new White Pine 1,000-ton mill saving very fine copper which could not be recovered by old methods; Butte copper district, improved classification, new 20-deck round table with rough surface, Laist leaching process for tailings, new oil flotation plants for zinc ores of Timber Butte mill and Butte and Superior mill, experimental flotation work at Anaconda; Cœur d'Alene lead district of Idaho, National and Hercules mills using Callow flotation process, Wyman mill using Callow-Wyman flotation, other mills experimenting on flotation, new Bunker Hill and Sullivan mill with latest ideas of construction; Ely, Nev., flotation experiments on porphyry copper ore; Garfield, Utah, experiments on enriching low-grade copper concentrates by flotation. As an illustration of advances in ore dressing, the Anaconda Copper Co. formerly saved only about 75 per cent. of the copper. Now, by additional apparatus, including Dorr settlers, 20-deck round tables, Oliver filters, and leaching of both sand and slime, the extraction of copper will reach 95 per cent. and the waste tailings will contain only 0.1 to 0.2 per cent. of copper. (See also *Gold and Silver, infra.*)

COAL, COKE, AND PETROLEUM

R. Dawson Hall

Coal-Mining Machines.—The practice of coal mining is still far from being as well systematized as that of other industries. Instead of concentration of work, the operation is still spread over a large area, with a few men working here and there and a small output per man employed. We have underground nothing resembling a steam shovel in operative capacity, no gang work as in railroading, no intensive operation as in a factory. Wherever the several acts of extraction are performed by different men, the work is not continuous; there are long waits between undercutting and shooting of coal, others between shooting and loading and a further wait between loading and transportation.

Till E. O'Toole introduced his mining machine and pneumatic transportation for such coal as is being mined for conversion into coke, all previous attempts at mining the whole coal from floor to roof had been restricted to the heading machines of various kinds which excavated a narrow entry into the coal, speed of progress rather than weight of mineral being the desideratum. During 1913 H. A. Kuhn and H. K. Knopf have been trying to mine and load lump coal by a nearly continuous operation, the coal being hauled out by mule, locomotive or rope in the accepted manner. Their machine mines and drills the coal. It is then shot down and the shoveling conveyor, which is part of the same machine, loads it into cars.

The Jeffrey entry machine undercuts and shears the coal vertically at one operation, knocks down the coal and loads it into the mine wagons. It is only, as indeed the name implies, intended for narrow work, but it could well be adapted to either a room or a longwall face. Another machine for entry work devised by the Ingersoll-Rand Co. uses a compressed-air punching machine for the cutting of the coal. This is not held to the face by man power, as such cutters usually are, but by the weight of the machine frame. The puncher is moved forward on slides and given a sidewise motion by an auxiliary engine. It undercuts the coal like an ordinary puncher machine and then shears first one side and then the other side of the entry. Finally the conveyor is moved under the cut of coal and the coal is dug down with violent blows from the cutter. As in the other machines mentioned, the coal is delivered by an elevator to a mine car in the rear.

All these machines are indications of a revolution in coal-mining methods; but the last two and the first presage possibly a return to the former method of mining without the use of powder. The shoveling device apart from the punching, undercutting and shearing features is not new and, in fact, there is nothing particularly original except the combination of the many devices in one machine. This, however, is an assurance that the assembled device is practical in its details, even if time is needed to arrange a complete coordination of parts. In some mines shoveling by hand is supplemented by machine loading, the coal being shoveled in an elevator, which passes the material upward and forward into a car.

Mine Locomotives.—The increased use of storage-battery locomotives is significant. The difficulty in the past has been to produce a fool-proof battery. It appears now that all difficulties have been fully met except first cost, and many users believe this objection is not borne out by experience.

Prevention of Mine Explosions.—Further inquiries have been made by the Federal Bureau of Mines into the immunization of mines to explosions by the use of stone dust. The French method of stopping explosions by placing shelves loaded with powdered rock across mine entries, named after its discoverer, Taffanel, was discovered to be most effective when these phenomena were most violent. No opportunity was given in this country for a practical test of its value because the system was not adopted except in a few mines in Colorado, and there the plan used was

not strictly that of the French investigator but was modeled rather on the English lines. But in France an explosion occurred at La Clarence which showed that such stone-dust barriers were defective, the powdered rock apparently being dislodged before the flame passed. Consequently both Taffanel and G. S. Rice independently suggested the use of stone-dust barriers which would be partly discharged by the pioneering wave, but which would still retain enough dust to blanket the explosion wave proper which follows.

Most mine explosions are of violence far less than that experienced at Monongah or Harwick and in many, if not most, the afterdamp is more baleful in its action than the violence itself. It is therefore important to prepare for the mild explosions as well for the more forceful, especially as the precautions which will be taken will reduce, it is hoped, the number of the latter. The tests made under Mr. Rice's direction at the experimental mine of the Bureau of Mines under conditions closely paralleling those in actual mine operation seem to show that explosions can be extinguished by the barriers proposed. However, it must not be overlooked that if the area subjected to the unchecked explosion is large enough, the violence will tend to wreck the mine and render the air fatal to all who breathe it.

Mine Accidents. — The principal mine accidents during the year were as follows: Jan. 10, Rock Castle mine of the Davis Creek Coal & Coke Co., Rockcastle, Ala., 12 men killed in an explosion; March 3, Bracquegnies, Hainault, Belgium, nine men drowned; March 8, Ekaterinoslav, Russia, 24 men killed in an explosion; April 28, Mines Nos. 5 and 6 of the New River Collieries Co., Eccles, W. Va., 180 men killed in an explosion; May 29, Maryd Colliery of the Maryd Coal Co., Tamaqua, Penn., six men killed in a cage accident; May 30, Silkstone Colliery, Wharncliffe, England, 11 men killed in an explosion; June 19, Mines Nos. 1 and 2 of the Hillcrest Collieries Co., Ltd., Hillcrest, Alberta, Can., 189 men killed in an explosion; July 28, Hansemann Shaft, Dortmund, Germany, 15 men killed by fire; Sept. 4, No. 1 Mine, Union Coal Co., Adamson, Okla., 13 men killed by a mine squeeze; Oct. 5, Mulga Mine, Woodward Iron Co., Mulga, Ala., 16 men killed in an explosion; Oct. 27, North Mine, Franklin Coal & Coke Co., Royalton, Ill., 52 men killed in an explosion.

Petroleum.—The remarkable production of the Mexican oil fields has perhaps been the dominant factor in the petroleum markets of the United States. Fortunately for the domestic producers, continued revolution and an unsettled future have restricted the output of the Mexican fields. One well of the Huasteca Petroleum Co., for instance, has produced 31,000,000 bbl. and is still producing at the rate of 650,000 bbl. a month. It is difficult to close in wells the output of which cannot be tanked or sold, because the ground is so open that the gas and oil seep to the surface, and if they become ignited terrible fires result. The losses of oil in the Mexican fields have been greater than those in any other. Attempts are being made to put out the extensive fire at the Potrero del Llano well with steam, chemicals or, in the event of the failure of both, by a tunnel.

The large output of oil in the Cushing field of Oklahoma caused the Corporation Commission of that state to permit the pipe-line companies between July 1 and Oct. 28 to refuse oil from wells commenced after July 1 with certain important reservations. The Commission ordered a certain Dr. Webber to cease drilling and a Federal court instructed him to drill. Whether he drilled or forbore he was in contempt and the pipe-line companies were in a like quandary. The Commission then tried to compel the pumping company to take a larger percentage of output and pay a higher price. No well could be drilled unless the Commission's agent gave his permission. Toward the close of the year the Commission practically admitted its precarious legal footing and to all intents and purposes ceased to restrain the exploitation of the oil pool.

The price of oil is continually declining. At the beginning of the year Pennsylvania crude sold at $2.50; it now sells at $1.45 per barrel.

IRON AND STEEL

JOHN HOWE HALL

Ore Deposits.—The regular shipment of cargoes of iron ore from newly acquired Chilean properties to a large eastern steelworks *via* the Panama Canal has been inaugurated. The shipment of Venezuelan iron ores to the United States has been discontinued, pending more systematic investigation of the properties. It is reported that there are deposits of several hundred million tons of high-grade iron ores in Brazil but they cannot be shipped in quantity until railroad facilities are provided. Belgian interests are said to contemplate the exploitation of the Texas ore properties, which have not yet been successfully developed. Elaborate experiments have been made in concentrating and smelting the titaniferous iron ores of the Adirondack region. Concentrates containing some 12 to 14 per cent. of titanium were smelted without difficulty in proportions up to 5/16 of the total ore charge. It was found that with the maximum percentage of titaniferous ores, the production of high-silicon iron was difficult. Experiments have been carried out on sintering the "paint rock" ores of the Lake Superior district. Further progress is reported in the use of nodulized and sintered fine ores. An increasing tonnage of ores from Tunis is becoming available.

The situation in ferro-manganese, brought about by the European War, has induced a western firm to essay the production of ferro-manganese in the electric furnace, while an eastern company contemplates the manufacture of low-percentage ferro-manganese from Lake Superior and eastern ores. A Scandinavian firm has begun the production of ferro-chrome from South African and New Caledonia ores.

Blast Furnaces.—An English metallurgist suggests the use of magnesite bricks for the hearths of blast furnaces. He also suggests the carbon linings which have been successfully used in Germany. A furnace in the Pittsburgh district was blown out after a run of 7 years, 7 months and 24 days, during which 1,053,673 tons of iron were made on the original lining. A new water-cooled device for protecting the stock line from abrasion has been described. Very considerable economies are claimed in the operation of blast-furnace stoves by increasing the velocity through them of the gas and the air required for combustion. The whirling thus set up, it is claimed, brings all portions of the column of hot gases in contact with the brick-work of the stoves, and thus recovers a larger portion of the heat of the gases, and shortens the period during which the stoves are being heated.

Further Treatment of Cast Iron.—A patent has been issued for a process by which, it is claimed, the sulphur content of molten pig iron can be reduced some 30 to 50 per cent. The process consists in bubbling air through the iron, and in some cases adding ferro-silicon and ferro-manganese to it. Investigations on hot-blast charcoal iron, it is claimed, show that the high strength of certain grades of this product is accompanied by a comparatively high content in oxygen. The iron containing the higher oxygen is characterized by an arrangement of the graphite in nodules of fine flakes radiating from a center, the microscopic appearance somewhat suggesting that of malleable iron. The graphite, so distributed, does not break up the continuity of the iron as much as graphite distributed in coarse flakes, hence the greater strength of this material. A process is being developed whereby, it is claimed, ordinary coke iron will be enriched in oxygen and this characteristic structure of the graphite, with increased strength, conferred upon it.

Cupola Practice and Foundry Work.—A run of over 16 months on a single cupola lining, during which 12,775 tons of iron was melted, has been recorded. The long life of the lining was due to very close laying of the bricks, to the care used in chipping out slag, and to proper proportioning of the material used for daubing the lining. Serious explosions in cupolas have been traced to the accumulation of carbon monoxide from the coke in the bustle pipe during periods when

the blast was off the cupola. A simple safety device has been perfected which serves to prevent the gases from flowing back through the tuyeres when the blast is shut off.

Some very valuable experiments have been carried out on reworking moulding and core sands. It has been shown that by wet or dry cleaning to remove dust and by regrinding the sands with proper amounts of clay, much sand that is now carted from the foundries can be made fit to use again. The saving is claimed to be considerable.

Steel-Making Processes.—The increasing use of the duplex process, as shown by the figures for steel production for 1913, is marked; 2,210,718 tons of steel were made by the duplex process in 1913, compared with 1,438,654 tons in 1912. The tendency to substitute cold scrap dropped into the Bessemer vessel for steam injected with the blast to reduce the temperature of metal that is blowing too hot, is indicated in descriptions of improvements at certain shops.

An account has been published of a very elaborate comparative test of a 300-ton Talbot furnace, a 60-ton tilting furnace and a 60-ton fixed open-hearth furnace, at a German steel-works. It was found that at this shop steel was made most cheaply in the Talbot furnace when from 800 to 1,000 tons a day were to be produced. The decline in output when working pig of high phosphorus content was found to be the smallest in the case of the Talbot furnace.

A process has been described which utilizes sesquifluoride of manganese as an addition to Bessemer steel and iron fluoride or sesquifluoride for open-hearth steel; the sulphur and phosphorus are considerably reduced, it is claimed, at a comparatively small expense.

Further figures have been published showing the advantages of using ferro-manganese melted in the electric furnace as recarburizer. Less ferro-manganese is needed, as it does its work more efficiently when molten. A study of this question shows, it is said, that if the oxide of iron in the steel is not entirely reduced by the manganese added, the unreduced iron oxide unites with the manganese oxide formed by the reaction between the iron oxide and the manganese, and the compound formed, being very fluid, is readily carried into the slag. Efficient deoxidation of the metal, it is suggested, can thus be secured at a considerable saving of manganese. (See also XXIV, *Electrochemistry*.)

Casting Steel Ingots.—A process has been devised for producing pipeless ingots by jarring the mould and ingot while the steel is solidifying. A special device is placed in the top of the mould, and the ingot and mould lifted and dropped with a jar, several times a minute. A Russian method of casting sound ingots, which utilizes several of the features of the processes recently described, consists in the use of short, thick ingots, cast from the top into a mould whose walls are thick at the bottom and thin at the top, provided with a sink-head of special design. It is claimed that the separation of the sulphides of manganese in the steel is restrained by rapid cooling, and that in most methods of producing pipeless ingots, the suppression of the pipe is accompanied by deleterious separation of these sulphides, due to the very slow cooling of the upper part of the ingot.

Steel-Works Fuels.—The use of powdered coal as fuel for heating furnaces has been considerably extended. The use of coke-oven gas, mixed with the burnt gases of the furnace, has been suggested for open-hearth purposes. Such a mixture, it is pointed out, has the same calorific value as producer gas. A process has been described for producing steam from the heat contained in molten blast-furnace slag. A number of authorities have published data on the use of blast-furnace and coke-oven gases. The tendency seems to be toward the installation of by-product coke ovens close to the blast furnaces and steel works, and if possible near large towns. The rich gas from the coke ovens is saved, and used direct for town lighting or mixed with blast-furnace gas for gas engines, for open-hearth and heating furnace fuel, etc. To take care of the problem of providing gas for steel work, etc., when blast furnaces are shut down, the latter may be used as gigantic gas producers, gasifying very low-grade

fuels. Experiments in this process have been made. In some cases the coke ovens may be most economically fired with blast-furnace gas or even producer gas made from lean fuels, in order to save the rich coke-oven gases. The number of by-product coke-oven plants in the United States is increasing. The tar recovered from the coke-oven gas is being used as an open-hearth fuel and for the manufacture of pitch.

Regenerative Furnaces.—A design of regenerative furnace, in which the flame travels always in the same direction, has been described, by which the regenerative feature may be applied to continuous heating furnaces.

Electric Furnaces.—A new design of small electric steel-melting furnace has been put on the market for which many advantages are claimed. In cases where suitable raw material is obtainable, advantages in cost are claimed for the electric furnace with acid lining. Steel is being made directly from ore in a Canadian plant. A process by which ferro-tungsten may be made from the scale from high-speed tool-steel scrap has been described. The failure of a large Norwegian plant making pig iron from ore in an electric furnace has been carefully investigated. The design of the electrical features is blamed, and the conclusion arrived at by several of the investigators that the use of coke in the type of furnace employed is impossible. (See also XXIV, *Electrochemistry.*)

Ferro-Alloys.—European investigators have concluded that the dangerous gases given off by certain ferro-chromes are due to the same causes as in the case of certain ferro-silicons. A high content in aluminium is said to accompany the tendency to evolve gas. An American investigator claims that these gases in ferro-alloys are evolved from calcium sulphide and phosphide in the alloys; that these compounds are produced by the reduction of impurities in the ores, and that by the use of properly pure raw materials, ferro-alloys of all grades may be produced that do not evolve dangerous gases.

Heat Treatment of Steel.—English investigators suggest that by the use of continuous furnaces, annealing time for steel castings may be made as short as 12 hours. The very long annealings practiced in England, they conclude, do not give the best properties to the castings. Several investigations on the heat treatment of steel castings have been made, including one upon the advantages of quenching and annealing, by which the steel is made extremely strong and tough. Metallic coatings produced by the metallizing pistol are said to be suitable for protecting certain parts of articles from carburization in case-hardening, and to have certain advantages for such purposes. An article dealing with the heat treatment of steel wire gives some interesting data, especially on annealing below the critical point in order to remove the hardness produced by wire-drawing, without too much reduction of strength. An investigator claims that the internal ruptures in so-called "cuppy" wire are due to improper shaping of the wire-drawing dies. An important article has been published dealing with the internal mechanism of plastic deformation of steel, and one showing that tensile overstrain appears to strengthen the metal against both tensile and compressive stresses. Another deals with the coarse recrystallization of cold-worked steel and iron on reheating, showing that the great growth of the crystals may begin at a temperature as low as 350° C., is practically complete at 700° to 750° C., and is followed by recrystallization in very fine crystals if the metal is heated above Ac3. The more severe the initial overstrain, the lower the temperature at which gross recrystallization begins. The presence of carbon reduces the size of the crystals produced and necessitates a higher initial stress for the production of crystal growth. The temperature separating "hot" and "cold" work has been ascertained by one experimenter to be 520° C. in the case of mild steels. He states that by annealing cold-worked metal for several hours at from 520° to 550° C., the metal is restored practically to its normal state. The advantages of so heat-treating steel that the pearlite is in the granular condition, have been pointed out. This condition leads to the greatest possible ductility. Two

articles deal with superficial decarburization of high-carbon steel during heating. The inner part of the decarburized zone is said to be more severe upon cutting tools than the interior portions of the steel; certain salt baths used to protect steel tools from decarburization during heating are shown to decarburize high-carbon steels superficially to about 0.25 per cent. carbon and to recarburize the surface of soft steels to about the same content. A process is described by which articles to be superficially hardened in certain parts are placed in a tank of water and heated with a welding torch, the part heated being immediately immersed in the water by moving the work a little.

Heat Treatment of Cast Iron.—The annealing of malleable iron has been studied. The cementite is shown to first dissolve in the austenite, whence the carbon is precipitated as "temper carbon." It is shown that precipitation is not complete at temperatures above about 775° C., so that if the castings are not cooled slowly between 775° and 700° C., or held at that temperature a certain time after rapid cooling from the annealing temperature, pearlite will be found in the metal.

Non-Metallic Impurities in Steel.—It is stated that the sulphides of manganese found in steel are in solution as long as the metal is fluid and separate during its solidification. The inclusions do not redissolve on heating, unless the metal is partially melted. A preliminary report has been made on an elaborate research on the gases occluded in fluid steel, which promises very valuable results.

Corrosion.—Investigations have been made into the influence of molybdenum, nickel, chrome, and chrome and nickel together, upon the corrosion of steel. The use of chrome steel for ship plates is suggested. Cast iron containing some 15 per cent. of silicon, is claimed to be excellent for parts subject to the action of chemicals. Further progress has been made in the study of the nature of corrosion. (See also XXI, *Physical Properties of Metals and Alloys.*)

Rail Steel.—The effect of aluminium in rail steel is said to be to improve the properties of the upper parts of the ingot. A proportion of arsenic over 0.2 to 0.3 per cent. is said to produce brittleness in rail steel, especially if the phosphorus is high. A coarse microstructure is said by a Russian investigator to be characteristic of rails that "mash down" at the wearing surface. The finishing temperatures of rails in several American shops have been ascertained; the conclusion is reached that the shrinkage clause in specifications does not insure a low finishing temperature. Two investigators reach the conclusion that "internal transverse fissures" in rails are due to defects in the metal; one inclines to the opinion that the heavy service to which the rails are subjected is largely responsible for this type of failure. Statistics for 1913 show that the proportion of American rails made by the open-hearth process is still increasing; it was 72 per cent. in 1913, as compared with 63 per cent. in 1912.

Alloy Steels.—Silicon steels are said to have the best magnetic qualities when the silicon content is about two per cent. An important paper on the magnetic habits of alloy steels has been published. A German patent has been granted on the use of cobalt in proportions up to 15 per cent. in high-speed tool steels. Several papers have been published on manganese steel; one deals with its microstructure and physical properties after various heat treatments; another with the microstructure, physical properties and especially the strongly magnetic nature of this steel after long heating at about 500° to 600° C. This treatment makes the metal strongly magnetic and very brittle. On reheating the magnetic material, a critical point is found at about 670° C., accompanied by a loss of magnetism. Reheated to 1,050° C. and quenched, the magnetic material becomes very tough and non-magnetic.

Critical Point A_2 and Beta Iron.—Many researches bearing on this vexed question have been published. The above-mentioned study of manganese steel is claimed to show that *beta* iron is non-existent. Experiments on the dilatation and the magnetic and other properties of steel have been made, with a view to determining

whether a critical point occurs at the temperature A2. Steel above A2 is known to be in a state that all authorities call *gamma*. Below A2 it is in the *alpha* condition. Between A2 and A3 it is in another state, which Osmond designated *beta* iron. The hardness of quenched steel, ascribed by some to the existence of this separate allotropic state, *beta* iron, is variously explained by others as due to the formation of hard amorphous iron, perhaps formed by sliding on the twinning planes of the crystals; to an "interstrained" condition due to the attempt of *alpha* iron crystals to assume their proper orientation, which is restrained by the simultaneous presence of *gamma* iron containing dissolved carbon; and to other causes. The evolution of heat on cooling past A2 is said to be due to a change in specific heat accompanying the loss of ferro-magnetism, and to other causes.

The nature of martensite, which is supposed to owe its hardness to the presence of *beta* iron, is involved in the discussion; one investigator believes it to consist of partially decomposed *gamma* iron, containing carbon in solution and also containing very finely divided free cementite; its nature is also explained in accordance with the "amorphous iron" and "interstrain" theories. The efforts to ascertain the nature of iron between the points A2 and A3 and the reason for the hardening of steel on quenching are adding greatly to our knowledge of the properties of the metal.

COPPER

L. S. Austin

Ore Handling.—Much attention is being given to insuring uniformity of the charge in copper blast-furnaces. For this purpose the Messiter system of bedding and reclaiming the ore is in increasing use. With uniform ore it is possible to reduce the percentage of fuel needed, the slag is cleaner, and the furnace runs smoother. The inventor of the system gives a cost of five to seven cents for such bedding and reclaiming. At the works of the Tennessee Copper Co., where the method has been adopted, the furnace gases are utilized for making sulphuric acid, the aim being to carry 6½ per cent. sulphur in them. Formerly these gases might run from three to eight per cent. in sulphur, introducing corresponding irregularities and uncertainties into the chamber gases for the making of sulphuric acid.

The Wedge Roaster.—The use of the Wedge type of multiple-hearth roaster has been pushed. For roasting copper ores it is built 22 ft. in diameter with six hearths, the roof over the top hearth, called "the dryer hearth," being utilized for drying and warming the ore. Certainty of feed is assured, preferably by the use of the endless belt feeder. In the Wedge roaster the draft is arranged to be taken off at the side from any or all of the four top hearths, thus attaining closer regulation. As a result, ores as low as 22 per cent. sulphur have been roasted without the aid of extraneous heat. Heretofore 25 per cent. has been regarded as the limit for self-roasting.

Blast-Furnaces.—At Mt. Morgan, Queensland, Australia, the blast-furnaces have several novel features. The jackets extend to the feed floor set high enough so that a down-take passes off below this floor, at which point the throat is narrowed. The furnaces have a closed top from which passes off an upper down-take by which the remaining smoke and gases escape.

The Reverberatory Furnace.—Oil, when it can be cheaply had, has been regarded as ideal for reverberatory practice. Of late, however, powdered coal, because of its cheapness, has been replacing it (*A. Y. B.*, 1912, p. 492). The coal is dried, then finely powdered to 200-mesh before use. A low-ash coal is preferred. This, as in concrete-making practice, is blown into the furnace by four or five nozzles. It has been possible to increase the daily tonnage from 300 tons daily in the ordinary coal-fired furnace to 450 tons per day where the powdered fuel is used. Also, where 21 per cent. of fuel was needed in the former furnace, as little as 13.3 per cent. has been used in powdered-coal firing. The

flame can be so regulated as to extend the melting zone, and in consequence the reverberatory is to be increased to 144 ft. long. A width of 25 ft. is also being used. This large furnace is expected to have an output of better than 800 tons daily. Where formerly a roof 15 in. thick at the bridge and 12 in. at the front was used, these dimensions have been increased to 20 in. and 15 in. respectively. Fettling, by throwing silicious material across the furnace from opposite side doors, has been given up in favor of dropping the material through holes in the roof just above the side walls. At the Hayden smeltery, Ariz., coarsely-crushed converter slag has been substituted for silicious ore as fettling material. It was noticed that if such slag was added cold through the charge openings, it tended to build up on the bottom; this suggested the new use for it. Slag has the advantage that it is coarser, heavy, and so does not slough away as the lighter silcious ore was disposed to do.

Converting.—If copper matte, the product of the silver-lead furnace, and containing for example S 22 per cent., Fe 45 per cent., Zn 8 per cent., Pb 14 per cent., and Cu 20 per cent., be treated in a basic-lined converter to the stage of white metal, making meanwhile additions of silicious ore, the elements are oxidized in the order above enumerated, the sulphur to SO_2, the metals (except copper) to their corresponding oxides, and these enter the slag. If, however, silicious ore is not added, the iron is oxidized to magnetite (Fe_3O_4) while the zinc and lead oxides pass away with the gases as a fume. Now, by the use of a bag-house (*A. Y. B.*, 1912, p. 498) this lead, and incidentally the zinc-bearing fume, can be caught and recovered. Toward the end of the blow, besides SO_2, some SO_3 is formed, which has a destructive action on the bags. The lead, and particularly the zinc oxides, as long as they are evolved, neutralize the SO_3. By stopping the blow at the right point no corrosion of the bags would occur. At the Tooele smeltery of the International Smelting Co., lead-free matte is made from copper ores, and in converting the gases go directly to a stack. At the proper time, and while there remains zinc oxide to neutralize the SO_3, the white metal is transferred to the copper converters, and the mixed products blown to blister copper. Still better to guard against corrosive action, some zinc-bearing sulphide ore or concentrate has been added toward the end of the first blow, thus supplying zinc oxide. When leady matte has been converted, with the free addition of silicious ore, there results a large amount of slag, which must be sent back to the blast-furnace in order to recover its contained copper, lead and silver. By the omission of the silica there results instead a much smaller quantity of magnetite, which, due to its high iron content, is a valuable flux at the blast-furnace.

When treating ordinary copper matte in a converter newly lined with basic brick it is the practice at first to make no additions of silicious material, so that magnetite is formed. At 1600° C. this magnetite is molten, but by cooling down the converter to 1200° C. by additions of cold matte or other copper-bearing material, the magnetite begins to form a coating or lining upon the interior of the converter, thus protecting the brick work against further corrosive action. The use of silicious ore is then begun, taking care to maintain the heat in the converter at such a point that the silicious material added shall not slag off the magnetite coating, nor shall too thick a lining be allowed to form. This method of forming a lining has been the subject of a patent. Experience in the use of the 12-ft. upright basic-lined converter (now so generally preferred) indicates that, due to the space which should be allowed for the magnetite lining, the distance from the tuyeres to the bottom of the converter should be increased to 15 in.

Hydrometallurgy of Copper.—The leaching of copper ores has received increased attention, until the drop in the price of copper due to the European War (from 14 to below 12 cents) halted experimental work looking to improved methods. Methods of leaching involving the use of sulphuric acid are most favored. At the Butte-Duluth plant, Butte, Mont., the ore is silicious, low in iron oxide, and

hence favorable for the method used. The ore is dry-crushed to 10-mesh size, then fed with four times its weight of a 10 per cent. solution of sulphuric acid to a Dorr classifier, the first of a series of six so arranged that the sand will discharge from one into the next. Forty minutes contact of the ore and acid in the first four classifiers give an extraction of 85 to 90 per cent. The last two classifiers of the series are used for washing. The overflow from the four classifiers runs to a series of Dorr thickeners, using the counter-current system of washing. The underflow or slime is discharged from the last thickener exhausted. The copper is deposited on stripping sheets as in ordinary copper refining. The solution entering the cells with three to four per cent. copper is withdrawn, still holding 1½ per cent., it having been found too expensive to remove this final portion. Of course, this solution is used again on fresh ore.

Electrolytic Refining.—Cathodes are now melted in a basic-lined furnace, the bottom being of hard-burned magnesite brick and the walls and roof of chrome brick. The lower tie rods are omitted, the lower ends of the buckstaves being pressed forward against the magnesite bottom by aid of jack screws. The furnace produces practically no slag, and hence there is less trouble in refining such as would be due to the taking up by the copper of impurities commonly in the slag. The furnace also does well on impure or blister copper for the same reason.

For treating blister copper high in arsenic, antimony and lead, the Baltimore Copper Co. have put in a plant of 1,000 tons monthly capacity arranged on the multiple principle, so that the voltage is cut to the lowest possible figure. In this respect it is better suited to operation on impure copper than the multiple-series installations.

GOLD AND SILVER

HERBERT A. MEGRAW

Gold Mining.—Discoveries of new deposits of gold or silver in 1914 have been few. Rumors of a high-grade gold deposit in Alaska were circulated but not confirmed. In the last half year a discovery of gold in Nevada, north of Tonopah, was announced, but no definite information is yet available. The camp is said to have been called Tonogold. Rochester, Nevada, of which much was expected, is developing in a normal way, the boom having been deflated. High-Grade, in California, has not justified its name.

Two of the older Nevada camps have returned to importance. Aurora, Mineral County, has been developed and equipped with a modern cyaniding mill. Candelaria, a contemporary of the older Virginia City, is to have another mill to work the low-grade ore and whatever good ore can be found.

No changes of importance have taken place in the Transvaal. The vacuum filter has made a place for itself. Efforts have been made to introduce zinc-dust precipitation, but no great success is yet apparent. The total gold production up to Sept. 30, for the year 1914, was $128,753,430, less by $10,335,000, or 7.4 per cent., than for the same period of 1913. No large construction has been undertaken. The European War has had a depressing effect upon progress, as has been the case everywhere else.

Mill Design.—Construction of new mills has been less than usual. Two small plants were built near Pachuca, the Cinco Minas in Jalisco, and one or two other plants in Mexico. The Plymouth Consolidated built a new amalgamation-concentration mill in California. The Tomboy, of Telluride, Col., is now building a 400-ton cyanide plant to treat their ores, which have recently been proven amenable to that process. The Aurora and the Porcupine Crown, in Ontario, are now operating.

At the Buckhorn mill, in Nevada, stamps were not included in the design. The ore is crushed, then passed through rolls and Hardinge mill. Two Akins classifiers separate the pulp, and the sand is reground in tube mills. The all-slime product is cyanided in Dorr agitators, thickened in Dorr thickeners with a change of

solution between each set of three, six in all, and filtered through Oliver filters. The Merrill zinc-dust process is used.

One principal feature at the Aurora mill is the equipment of 1,660-lb. stamps. Local operators believe them to be the heaviest installed in this country, but they are lighter than those at the Iola mill, at Candor, N. C., which are over 1,700 lb. The Iola company has worked out its deposit and sold its mill. The Aurora mill was built for 500 tons per day, but has not yet reached that capacity. Another feature of it is the use of short, large-diameter tube mills. There are six 6 by 16-ft. mills in use there, each having a capacity of 75 to 100 tons of classified oversize per day. Dorr agitators are used and Trent replacers, the latter designed to replace pregnant solutions with barren. Zinc dust is used for precipitation.

A new mill was started early in the year at the Uwarra mine in North Carolina. It uses breaker, rolls and tube mills, making an all-slime product, with agitation in Hendryx tanks.

An important metallurgical change was made at the Dome mill at Porcupine, Ont. Originally an all-sliming mill, it was changed to a separate-treatment plant. The stamp installation was doubled to increase the capacity, a necessity in view of the low grade of the ore. No extra tube mills were installed, so the ore gets only one passage through them, and is then classified by Dorr classifiers into sand and slime, each treated separately. Crushing is still in water, with amalgamation following. Large steel tanks have been built for leaching the sand. The original slime-treatment installation of Pachuca tanks will handle only the natural slime made during crushing. The quantity milled will be about double the amount handled by the old mill. Merrill filters for slime tailing and Merrill zinc-dust process for precipitation will still be used.

The Homestake, in the Black Hills, South Dakota, operated as usual during the year. None but minor changes have been made. Total mining and milling costs are given at $2.59 per ton, of which milling, including cyaniding, amounts to 61.18 cents per ton. The scale of operations here is the largest of any cyaniding plant in America.

Decantation and Filtration.—The Porcupine Crown mill was built to carry out the principles of continuous counter-current decantation. Crushing is by stamps. Tube mills and classifiers are in closed circuit, plate amalgamation being also included. The all-slime product is taken to a Dorr thickener, the thickened slime then agitated in Dorr agitators with a 1 to 1.32 dilution. Then follows a passage through four Dorr thickeners by counter-current methods. Water enters the final thickener and progresses back through each one. Tailings are discharged at a dilution of one of solids to 0.54 of moisture. Dissolved losses in tailings are about 3.4 to 4 cents per ton, and loss of cyanide only slightly greater than with filter plants. No filter is installed. Zinc-dust precipitation is followed.

Continuous counter-current decantation has been so successful that some plants have dispensed with filters already installed and arranged for decantation. Among these are the Tom Reed mill at Oatman, and the Gold Road mill at Kingman, Ariz. In the case of the Gold Road mill, the company found that an ultimate economy of 60 cents per ton milled was obtained. The Hollinger mill, Timmins, Ont., adopted a partial system of counter-current decantation. The Vipond, in the same district, completed a cyanide annex to their plate amalgamation mill which is now in successful operation. It uses decantation essentially as is done at the Porcupine Crown. The McIntyre mill also uses a modification of the system. The process is increasing in use and there is reason to believe that it will be applied to almost all ores amenable to cyanide treatment. With gold ores of low or medium grade dissolved losses are as low as with filters. With silver ores the amount of metal dealt with is greater and cyanide strength higher, so that to avoid a cumbersome number of thickeners, a simple filter is often installed to dewater the final tailing. This reduces losses of both cyanide and metal in tailings.

Vacuum leaf filters are losing popularity. Great installation expense and cost of operation are against them. The decantation process is largely taking their place.

Silver Milling.—An important metallurgical feat made public during the year is the treatment of silver at the Nipissing mill at Cobalt. It is based on the reducing action of the nascent hydrogen formed when caustic soda and aluminium are brought together. The procedure is to grind through 200-mesh and thicken in caustic-soda solution, then pass the pulp through a tube mill containing aluminium blocks. Pulp is then agitated in a tank with aluminium lining, then filtered and cyanided. The preliminary treatment desulphurizes the complex silver minerals, leaving the silver free and readily dissolved in cyanide. The milling cost is $2.952 per ton.

Rebellious silver-lead-copper-zinc ores of Park City district, Utah, are now being treated by giving a chloridizing roast and then leaching, the chlorides being soluble in the leaching solutions. The Holt-Dern and Knight-Christensen continuous furnaces have been evolved to fill the requirements of these ores. Much experimentation has been carried on and it is believed that a successful outcome is assured.

Placer Mining.—Placers accounted for about 25 per cent. of the gold production, as usual. No important changes were made in methods. The Oroville company purchased another property in Colombia. The Pato company now has 60 sq. miles of territory.

Developments in Alaska.—Development on a great scale is under way in Alaska. The Alaska Juneau, Alaska Ebner and Alaska Gold Mines are all developing huge low-grade deposits in the Juneau district. The work at the Alaska Gold Mines, also known as the Alaska Gastineau, on Gastineau Channel, is well under way. A large power-supply dam has been completed on Salmon Creek and a mill unit of 6,000 tons daily capacity is being rushed to completion. Operations are expected to begin early in 1915. The crushing system will probably follow the general lead of the porphyry copper mines. The proposed system of recovering the gold has not yet been made public.

LEAD

H. O. Hofman

The attitude of some of the large lead smelters in the past has prevented the publication of much information regarding the operations at their plants. This attitude has happily been modified during the past year and as a result a number of noteworthy papers have been published, discussing various phases of the subject. The symposium on lead at the Salt Lake City meeting of the American Institute of Mining Engineers was of particular value in summarizing existing conditions in the industry.

Blast Furnaces.—Irving A. Palmer (*Bull. A. I. M. E.*, July, 1914, pp. 1447-60) discusses in detail the important features of blast-furnace practice. In particular he emphasizes the value of proper preparation of the charge. There must be sufficient fine material to prevent too rapid smelting and insufficient reduction. On the other hand, fines are likely to be separated from the coarse material by the jigging action of the blast and cause irregularities in slag composition accompanied by losses of metal.

The composition of slags is not considered as important as formerly. If it is desirable to use high-silica or high-lime slags because of the composition of the ore, this may often be done by adjusting the furnace temperature to suit these conditions. An argument for high-silica charges is that they tend to prevent furnace accretions which are usually basic.

Bag houses and dust catchers are frequently operated at a loss, consequently every effort is being made to cut down volatilization and dust losses. At Midvale, Utah, the dust formerly carried 40 to 55 per cent. lead. This has now been reduced to 20 per cent.

The bad effect of zinc in the charge is well known. In roasted ores the

zinc usually remains as sulphide which in smelting is only slightly absorbed by the matte, floats on its surface and makes separation of metal and matte difficult.

Fume Filtration.—The fume question still engrosses the attention of metallurgists and although some progress has been made there are still important problems to be solved. L. D. Anderson (*ibid.*, 1689-97) discusses the success made with filtering through bags. He brings out the facts that wool bags are costly but more durable than cotton and that any bag will be destroyed if moisture is present. If the fume is too hot, the bags may be burned or the fume pass through uncondensed; if too cool, water may be condensed. (See also *Copper, supra.*)

Neutralizing the SO_3 with slaked lime is of great assistance in preventing corrosion of iron flues. Both blast-furnace and roaster gases may be successfully treated by bag filtration. Hot condensed arsenic fumes and condensed elemental sulphur may produce a good deal of trouble by taking fire.

Roasting.—The author of the above paper discusses in the *Engineering and Mining Journal* (xcviii, 51) the subject of roasting leady matte in Wedge furnaces. It was discovered that after the furnace was thoroughly heated this matte could be satisfactorily roasted preparatory to sintering, without extraneous heat. It was necessary, however, carefully to regulate the draft of the furnace, as too much excess air cooled the hearths and stopped the roasting. (See also *Copper, supra.*)

A comparison of the work of Dwight-Lloyd and Huntington-Heberlein systems of sintering at the Murray smelter is given by W. W. Norton (*Bull. A. I. M. E.*, August, 1914, pp. 1993-9). He concludes that the Dwight-Lloyd is cheaper to instal and admits of more variations in the make-up of the charge. On the other hand, the cost of roasting by the Huntington-Heberlein system is slightly lower and the physical condition of the product better. In discussing the above paper, G. C. Riddell (*Eng. and Min. Jour.*, xcviii, 495) gives some figures obtained at East Helena which are more distinctly favorable to the Dwight-Lloyd system. The coke consumption with this sinter is considerably less and the porous nature of the material seems to have a favorable influence on the running of the furnace. Mr. Dwight (*ibid.*, 404) suggests that the reason Mr. Norton did not obtain better results with the Dwight-Lloyd sinter is because he used too much coke. Practice elsewhere indicates that the Dwight-Lloyd product not only allows but demands less fuel.

Matte Converting.—An innovation in the converting of lead matte has been introduced at Tooele, Utah (O. M. Kuchs, *Bull. A. I. M. E.*, July, 1914, 1751-6). Here the matte is first blown in basic-lined converters without the addition of silicious flux. The lead and zinc are volatilized and recovered by filtering through woolen bags. The copper and heavy iron slag are transferred to converters blowing copper matte.

Smelting Plants.—Some interesting facts regarding the introduction of bag filtration into lead smelting plants and its development at the Globe works in Denver are given by H. H. Alexander (*ibid.*, August, 1914, pp. 2001-9). Figures are given showing the results of tests on cotton and woolen bags heated for from one to 144 hours at temperatures of 210-385° F. It was found that the tensile strength of the cotton bags began to fall at 215° F. after 48-hour treatment, while it took 275° for 96 hours to affect the woolen bags. One-hour treatment affected the cotton bags at 260° and the woolen bags at 370°. Woolen bags made from unwashed wool are superior to others but it is difficult to obtain them as the manufacturers find difficulty in working this material. Cotton bags are therefore sometimes treated with grease after they are made to increase their efficiency.

A detailed description of the operations at the lead refining plant at East Chicago is given by G. P. Hulst (*ibid.*, August, 1914). The plant was constructed in 1912 and has a capacity of 200 tons per day. The Parkes process is used and the products are common lead, corroding lead, antimonial lead and doré bullion.

The main operations are carried on in one building and the arrangement is such that the lead flows by gravity from one stage of the process to another and is finally hand-molded and loaded by trucks into cars. The bullion treated comes from the plant of the company at Tooele, Utah, and averages 65 oz. silver and 0.4 oz. gold per ton.

The usual steps of zinc desilverization are carried out. After desilverizing, the lead is treated in the refining furnace to remove the zinc, after which it is in part molded and in part treated by the Pattinson process to remove the bismuth. The plant is equipped with the usual apparatus, including blast furnace for treating by-products; lead is recovered from fume by filtering through woolen bags.

ZINC

W. R. Ingalls

Commercial Conditions. — During the first half of 1914 the zinc industry suffered from excessive production. At the mid-year, the European smelters had an unsold accumulation of about 100,000 short tons, while American smelters had 64,000 short tons. Needless to say, a low level of prices had prevailed. The monthly averages, St. Louis basis, were 5.1, 5.2, 5.1, 5.0, 4.9, 4.8, while at London they were £21½ to £21⅜. In Europe the international convention exercised some control over the situation, but in America, where there is keen competition, things went along on the usual *laissez faire* policy. In July the situation looked really desperate, the price having fallen below 4¾ cents, while the smelters reckoned their spelter had cost them five cents and upward.

On the outbreak of the European War, it appeared that England was going to be cut off from her main sources of spelter supply, namely, Germany and Belgium; the great accumulation of spelter was nearly all in those countries. Consequently England began to bid for spelter in the United States and purchased largely, advancing the price to nearly six cents, and greatly relieving American smelters from their awkward predicament. However, England temporarily overbought its requirements and soon afterward becoming able to obtain some spelter from Holland, it withdrew from the American market and in September the price here declined as rapidly as it rose in August. By the middle of October, it was 4½ cents at St. Louis. We have since then witnessed a renewal of the export trade to England and elsewhere, but it has been on a more sober and probably more permanent basis.

The War has had a catastrophic effect upon the zinc industry of the world. Besides stirring up the American business, it paralyzed the great zinc-mining industry in Australia, which was Europe's largest source of raw material, and its mines had to be closed for the reason that their product could no longer be delivered to Germany. The principal smelteries of Belgium are situated along the river Meuse, above Liège. According to the most recent reports, these were unharmed but idle. The plants in the Campine district were operating, but on a reduced scale, and those of Rhenish Prussia were operating at about 30 per cent. of their ordinary capacity. In November the Russian advance in southwestern Poland was threatening the zinc and lead smelteries of Upper Silesia, which are but a few miles west of the frontier.

About the end of October the American zinc market was rallied by the temporary suspension of production by the Butte & Superior Company, the largest producer of ore for spelter making, and a renewal of the demand from England.

Three other effects of the war may be mentioned. There came an urgent demand for high-grade and intermediate spelters, which are used especially for making brass for ammunition, and the producers of those kinds reaped huge profits. High-grade, which ordinarily fetches 2 to 2½ cents per lb. more than prime western, realized as much as 10 cents per lb. Zinc dust, whereof the United States consumes about 2,800 tons per annum, all but about 400 tons coming from

Belgium and Germany, rose from about 6 cents per pound to 15 cents, which led a large smelter to enter upon its manufacture here, in addition to the two previously engaged in the business. There naturally developed a strong foreign demand for our sheet zinc, and the two rolling mills, which had been operating at but partial capacity for a long time previous, suddenly found their hands full.

Production.—A surprising feature of the first half of 1914 was the maintenance of a huge production in the United States in spite of the low prices. The explanation is an ample capacity of our mines and a temporarily excessive smelting capacity. Smelters are reluctant to curtail operations because cost per ton of ore then rises; they prefer to run full and sacrifice profit. Certain smelters owning several works shut down some of them, however.

The important new mine at Mascot, Tenn., referred to in the last issue, has turned out well. The Timber Butte, a new mill using the flotation process at Butte, Mont., began making a large production in June. The new smelteries near Pittsburgh and near St. Louis were practically completed in the latter part of 1914, but their production of spelter was delayed by the adverse market conditions.

Flotation Process.—Reference has been made in previous reviews to the flotation process of separating ores. This is the most important advance in the art in recent times. In the trial of the case of Minerals Separation *v.* James M. Hyde in the Circuit Court of Appeals at San Francisco in 1914 Minerals Separation lost, its patents being held invalid. Minerals Separation has succeeded in getting the case before the Supreme Court. The process is being widely used, not only for zinc ores but also for copper and lead ores, with and without recognition of Minerals Separation, but the continued litigation is a retarding influence. (See also *Mining and Ore Dressing, supra.*)

Metallurgy.—A distillation furnace fired with petroleum at Cherryvale, Kan., is a novelty. The sintering of residues as a preparation of them for the lead smelters is a new thing at certain of the Oklahoma plants. European smelters have a new roasting furnace, the Spirlet, of which good things are said. There has been a good deal of experimentation in Europe with vertical retorts, which are talked of as successful, but no details have yet been published. Electric smelting has continued to have a good deal of attention, but there is nothing important to be reported about it, except that furnaces of eight tons' daily capacity have been built at Trollhättan, Sweden, and Johnson is planning a 10-ton furnace at Keokuk, Iowa. (See also XXIV, *Electrochemistry.*)

STATISTICS OF MINERAL PRODUCTION

WORLD'S PRINCIPAL MINERAL PRODUCTS, 1900–13

(In metric tons)

(*The Mineral Industry*)

	1900	1905	1910	1911	1912	1913
Aluminium	7,339	16,810	.....	.....	.....	78,716
Asphaltum	322,896	353,827	511,217	601,027	725,915	.....
Coal	765,138,033	928,049,163	1,151,333,203	1,189,647,668	1,273,149,943	.....
Copper	491,435	698,931	877,494	879,751	1,011,312	1,002,284
Lead	770,082	884,986	971,492	1,069,289	1,163,802[1]	1,152,865[1]
Petroleum	19,484,471	29,878,112	44,236,973	44,465,856	48,110,742	53,293,186
Phosphate rock	2,795,149	3,845,552	4,007,963	6,147,077	6,287,519	5,727,691[2]
Pig iron	39,599,457	54,054,783	65,860,084	63,210,694	73,179,767	.....
Steel	28,727,239	43,900,648	58,622,773	58,275,701	58,379,569	.....
Tin	82,117	100,795	105,764	118,898	126,199	.....
Zinc	465,438	563,565	815,805	881,886	976,872	1,001,200

[1] Statistics from *Mineral Resources of the United States.*
[2] Figures incomplete.

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES, 1900–13

(In metric tons)

(*The Mineral Industry*)

	1900	1905	1910	1911	1912	1913
COAL						
Australasia	7,599,269	9,227,129	12,147,310	12,877,331	14,092,079	14,532,351
Austria-Hungary[1]	39,107,786	41,952,008	48,250,668	49,089,893	51,545,767	43,838,221[2]
Belgium	23,462,817	21,775,280	23,916,560	23,053,540	22,972,140	22,845,310
France	33,404,298	35,218,000	37,634,893	38,521,000	40,394,000	40,922,203
Germany	149,788,256	173,810,669	222,301,660	234,508,447	255,810,094	.....
Japan	7,370,667	11,955,946	15,433,621	17,632,710	19,515,285	19,639,755
Russia	16,156,055	18,727,766	23,105,628	28,007,239	30,641,163	25,772,700
United Kingdom	228,772,886	239,906,999	268,677,182	276,255,764	264,749,661	292,047,544
United States	243,414,164	351,120,625	445,816,040	455,720,550	534,466,580	570,048,125
COPPER						
Africa	6,828	7,442	15,449	17,252	16,633	25,411
Australasia	23,368	34,706	40,962	42,512	47,774	47,326
Austria-Hungary	1,377	1,346	2,276	2,566	4,024	4,135
Bolivia	2,134	2,032	2,540	2,950	4,681	3,658
Canada	8,595	21,595	23,810	25,570	34,213	34,587
Chile	26,016	29,126	38,346	33,088	39,204	40,195
Cuba	.....	.....	3,538	3,753	4,393	3,517
Germany	20,635	22,492	25,105	22,363	24,304	25,309
Italy	2,797	2,997	3,272	2,642	2,337	1,626
Japan	28,285	35,944	50,703	52,303	62,486	73,152
Mexico	22,473	65,449	62,504	61,884	73,617	52,815
Norway	3,998	6,406	10,592	9,576	11,156	11,796
Peru	8,353	12,213	27,376	28,500	26,483	25,715
Russia	8,128	9,515	22,670	25,747	33,550	42,970
Spain-Portugal	53,718	45,527	51,080	51,748	59,876	54,696
Sweden	457	1,385	2,032	2,032	1,524	1,016
United States	274,933	397,069	492,720	491,634	563,260	557,387
LEAD						
Australasia	87,100	106,418	105,897	105,397	113,710	127,867[3]
Austria	10,650	12,968	15,476	18,097	19,993	22,312
Belgium	16,465	22,885	40,715	44,308	54,940	35,750
Canada	28,648	25,391	14,967	10,791	16,226	17,089
France	15,210	24,100	20,226	23,635	31,080	30,864[3]
Germany	121,513	152,590	159,851	161,287	192,618	199,627[3]
Greece	16,396	13,729	16,710	14,234	14,498	20,282[3]
Italy	23,673	19,097	14,495	16,684	21,450	23,920[3]
Mexico	63,827	101,196	120,662	124,605	109,717	55,330
Spain	172,530	185,693	190,523	189,810	232,612	223,767[3]
United Kingdom	35,500	28,494	30,799	28,326	26,061	33,620[3]
United States	253,204	290,472	355,183	363,829	372,056	395,358
PETROLEUM						
Dutch East Indies	.....	1,062,224	1,700,000	1,670,688	1,520,000	1,528,220
Galicia	.....	794,862	1,700,000	1,454,660	1,180,568	1,090,000
India	151,523	581,519	863,615	907,684	1,001,316	1,100,000
Roumania	250,000	614,870	1,352,300	1,541,847	1,806,942	1,885,225
Russia	9,844,390	7,505,637	8,952,793	9,167,600	9,249,600	9,474,876
United States	8,262,406	18,969,000	28,331,000	29,001,100	29,906,416	33,702,414
PIG IRON						
Austria-Hungary	1,311,949	1,372,300	2,010,000	2,095,000	2,312,689	.....
Belgium	1,018,561	1,311,120	1,852,090	2,046,280	2,301,290	2,484,690
Canada	87,594	475,491	726,471	832,376	920,229	1,023,973
France	2,714,298	3,007,000	4,032,459	4,426,469	4,871,992	5,311,316
Germany	8,520,540	10,875,061	14,502,183	15,280,527	15,220,881	.....
Italy	23,990	181,248	399,700	302,931	379,989	.....
Russia	2,933,786	2,628,101	3,042,046	3,588,449	3,726,000	3,801,273
Spain	91,126	305,462	373,322	408,667	366,136	.....
Sweden	526,868	539,437	603,929	634,392	699,816	735,000
United Kingdom	9,003,046	9,746,221	10,380,723	9,874,620	9,037,150	10,653,824
United States	14,009,870	23,340,258	27,636,687	24,027,940	30,202,568	30,966,152

[1] Includes lignite. [2] Austria only. [3] Short tons, unofficial.

MINERAL PRODUCTION BY PRINCIPAL COUNTRIES, 1900–13—*Continued*

	1900	1905	1910	1911	1912	1913
Steel						
Austria-Hungary	1,145,654	1,188,000	2,188,371	2,363,008	2,785,105	2,682,619
Belgium	655,199	1,023,500	1,449,500	1,537,000	1,954,490	.....
Canada	23,954	403,449	835,478	880,278	.....	.....
France	1,565,164	2,210,284	3,506,497	3,680,613	4,078,352	4,419,241
Germany	6,645,869	10,066,553	13,698,638	15,019,333	17,868,909	19,291,920
Italy	115,887	117,300	635,000	646,500	.....	.....
Russia	2,217,752	1,650,000	2,350,000	2,519,000	.....	.....
Spain	144,355	237,864	220,000	228,230	.....	.....
Sweden	300,536	340,000	468,600	456,500	508,300	.....
United Kingdom	5,130,800	5,983,691	6,476,791	6,565,321	6,689,118	7,543,187
United States	10,382,069	20,354,291	26,512,437	24,054,918	31,751,324	31,822,555
Zinc						
Austria	6,742	9,204	13,305	15,766	19,096	20,000
Belgium	119,315	142,555	181,745	198,230	205,940	198,000
France	36,305	43,200	51,527	57,110	65,565	70,000
Germany	155,799	198,208	227,754	235,776	271,064	285,000
Holland	6,845	13,550	20,975	22,734	23,932	24,000
Russia	5,963	7,520	8,128	9,652	11,176	9,000
United Kingdom	30,207	50,125	63,587	67,907	57,231	59,000
United States	111,794	183,014	251,348	268,378	316,368	323,200

WORLD'S PRODUCTION AND COINAGE OF PRECIOUS METALS, 1851–1913

(Report of the Director of the Mint)

Period	Gold		Silver		Commercial Ratio of Silver to Gold
	Fine Ounces	Value	Fine Ounces	Coining Value	
Production:					
1851–1855 (average)	6,410,324	$132,513,000	28,488,597	$36,824,000	15.41
1856–1860 (average)	6,486,262	134,083,000	29,095,428	37,618,000	15.30
1861–1865 (average)	5,949,582	122,989,000	35,401,972	45,772,000	15.40
1866–1870 (average)	6,270,086	129,614,000	43,051,583	55,663,000	15.55
1871–1875 (average)	5,591,014	115,577,000	63,317,014	81,864,000	15.98
1876–1880 (average)	5,543,110	114,586,000	78,775,602	101,851,000	17.86
1881–1885 (average)	4,794,755	99,116,000	92,003,944	118,955,000	18.62
1886–1890 (average)	5,461,282	112,895,000	108,911,431	140,815,000	21.14
1891–1895 (average)	7,882,565	162,947,000	157,581,331	203,742,000	27.06
1896–1900 (average)	12,446,939	257,301,100	165,693,504	214,229,700	33.50
1901	12,625,527	260,992,900	173,011,283	223,691,300	34.68
1902	14,354,680	296,737,600	162,763,483	210,441,900	39.15
1903	15,852,620	327,702,700	167,689,322	216,810,300	38.10
1904	16,804,372	347,377,200	164,195,266	212,292,900	35.70
1905	18,396,451	380,288,700	172,317,688	222,794,500	33.87
1906	19,471,080	402,503,000	165,054,497	213,403,800	30.54
1907	19,977,260	412,966,600	184,206,984	238,166,600	31.24
1908	21,422,244	442,476,900	203,131,404	262,634,500	38.64
1909	21,965,111	454,059,100	212,149,023	274,293,700	39.74
1910	22,022,180	455,239,100	221,715,763	286,662,700	38.22
1911	22,348,313	461,939,700	226,192,923	292,451,500	38.33
1912	22,549,335	466,136,100	224,310,654	261,402,300	33.62
1913	.....	455,533,518	.....	.....	.....
Coinage:					
1873–1880 (average)	8,665,153	179,124,608	91,460,904	118,252,482	.....
1881–1890 (average)	5,898,643	121,935,781	97,881,838	126,554,296	.....
1891–1900 (average)	13,707,461	283,358,375	116,010,359	149,993,192	.....
1901	12,001,537	248,093,787	107,439,666	138,911,891	.....
1902	10,662,098	220,405,125	149,826,725	193,715,362	.....
1903	11,634,160	240,499,547	161,159,508	211,795,829	.....
1904	22,031,285	455,427,085	136,518,406	176,508,646	.....
1905	11,898,037	245,954,257	134,062,314	173,333,093	.....
1906	17,721,058	366,326,788	120,339,501	155,590,466	.....
1907	19,921,014	411,803,902	171,561,490	221,816,867	.....
1908	15,828,573	327,205,649	151,352,824	195,688,499	.....
1909	15,153,116	313,242,714	87,728,951	113,427,331	.....
1910	22,004,542	454,951,834	78,786,842	108,934,541	.....
1911	18,002,414	372,143,555	117,237,838	148,156,282	.....
1912	.....	360,671,382	.....	171,293,019	.....

MINERAL PRODUCTION OF THE UNITED STATES, 1900–13

(*United States Geological Survey*)

	1900	1905	1910	1911	1912	1913
METALS:						
on ore.....long tons	.....	42,526,133	56,889,734	41,092,447	57,017,614	59,643,098
on, pig....long tons	13,789,242	22,992,380	27,303,567	23,649,547	29,726,937	30,388,935
eel.....long tons	10,188,329	20,023,947	26,094,919	23,676,106	31,251,303	31,300,874
ver.....troy ounces	57,647,000	56,101,600	57,137,900	60,399,400	63,766,800	66,801,500
old.....troy ounces	3,829,897	4,265,742	4,657,018	4,687,053	4,520,717	4,299,784
pper.....pounds	606,117,166	888,784,267	1,080,159,509	1,097,232,749	1,243,268,720	1,224,484,098
ad.....short tons	270,824	302,000	372,227	406,148	392,517	436,430
nc.....short tons	123,886	203,849	252,479	271,621	323,907	337,252
ıicksilver.....flasks	28,317	30,451	20,601	21,256	25,064	20,213
uminium....pounds	a7,150,000	11,347,000	47,734,000	46,125,000	65,607,000	72,379,000
timonial lead..sh.t.	.....	.....	14,069	14,078	13,552	16,665
atinum..troy ounces	400	318	773	940	1,005	1,034
NON-METALS:						
els:						
itum. coal *b*....sh.t.	212,316,112	315,062,785	417,111,142	405,907,059	450,104,982	478,523,203
enn. anthracite .l. t.	51,221,353	69,339,152	75,433,246	80,771,488	75,322,855	81,718,680
oke.....short tons	.....	32,231,129	41,708,810	35,551,489	43,983,599	46,299,530
etroleum....barrels	63,620,529	134,717,580	209,557,248	220,449,391	222,113,218	248,446,230
uct'l Materials:						
ement.....barrels	17,231,150	40,102,308	77,785,141	79,547,958	83,351,191	92,939,102
ime.....short tons	.....	2,984,100	3,505,954	3,392,915	3,529,462	3,595,390
nd & gravel...sh.t.	.....	23,204,967	69,410,436	66,846,959	68,318,877	77,764,049
asive Materials:						
orundum and em-						
ery.....short tons	4,305	2,126	1,028	659	992	957
arnet....short tons	3,185	5,050	3,814	4,076	4,182	5,308
umice....short tons	.....	1,832	23,271	21,689	27,146	24,563
emical Materials:						
rsenious oxide..lbs.	.....	1,507,386	2,994,000	6,264,000	6,282,000	5,026,000
orax (crude)...sh.t.	25,837	46,334	42,357	53,330	42,315	58,051
romine.....pounds	521,444	1,192,758	245,437	651,541	647,200	572,400
luorspar....sh. tons	18,450	57,385	69,427	87,048	116,545	115,580
ypsum...short tons	594,462	1,043,202	2,379,057	2,323,970	2,500,757	2,599,508
hosphate rock...l.t.	1,491,216	1,947,190	2,654,988	3,053,279	3,973,332	3,111,221
yrite.....long tons	204,615	253,000	241,612	301,458	350,928	341,338
ılphur....long tons	*c* 3,525	181,677	255,534	265,664	303,472	311,590
lt.....barrels	20,869,342	25,966,122	30,305,656	31,183,968	33,324,808	34,399,298
ments:						
arytes...short tons	67,680	48,235	42,975	38,445	37,478	45,298
ineral paints..sh.t.	57,426	63,521	85,304	} 143,350	181,154	173,168
nc oxide.....sh.t.	48,840	68,603	58,481			
scellaneous:						
sbestos...short tons	1,054	3,109	3,693	7,604	4,403	1,100
sphalt...short tons	54,389	115,267	260,080	364,266	449,510	529,190
auxite....long tons	23,184	48,129	148,932	155,618	159,865	210,241
hromic iron ore....						
long tons	140	22	205	120	201	255
eldspar...short tons	24,821	35,419	81,102	92,700	86,572	120,955
ıller's earth...sh.t.	9,698	25,178	32,822	40,697	32,715	38,594
lass sand.....sh.t.	.....	1,060,334	1,461,089	1,538,666	1,465,386	1,791,800
raphite....sh. tons	3,365	24,986	4,202	3,618	2,445	4,775
agnesite...sh. tons	2,252	3,933	12,443	9,375	10,512	9,632
anganese ore...l.t.	11,771	4,118	2,258	2,457	1,664	4,048
anganiferous ore						
long tons	.....	.....	61,101	44,437	51,517	59,403
ica.....pounds	11,450,283	3,176,875	10,606,190	8,911,201	7,297,483	10,644,000
ineral waters						
gallons sold	45,276,995	46,544,361	62,030,125	63,788,552	62,281,201	57,867,399
iartz....short tons	32,495	51,145	63,577	87,943	97,874	.....
lc and soapstone						
short tons	27,943	40,134	79,006	81,521	92,403	94,128
lc, fibrous....sh.t.	63,500	56,500	71,710	62,030	66,867	81,705
torium minerals						
(monazite) and						
rircon .....pounds	908,006	1,352,418	99,301	3,208	.....	.....
ngsten ore ...sh.t.	40	803	1,821	1,139	1,330	1,537

a Consumption. *b* Including brown coal and lignite, and anthracite mined elsewhere than in Pennsylvania. *c* Short tons.

VALUE OF MINERAL PRODUCTS OF THE UNITED STATES, 1900–13

(United States Geological Survey)

	1900	1905	1910	1911	1912	1913
METALS:						
Iron ore	$66,590,504	$75,165,604	$140,735,607	$86,716,575	$107,050,153	$130,905,558
Iron, pig (a)	259,944,000	382,450,000	412,162,486	327,334,624	420,563,388	458,342,345
Silver	35,741,100	34,221,976	30,854,500	32,615,700	39,197,500	40,348,100
Gold	79,171,000	88,180,700	96,269,100	96,890,000	93,451,500	88,884,400
Copper	98,494,039	137,761,561	137,180,257	137,154,092	205,139,338	189,795,035
Lead	23,561,688	28,690,000	32,755,976	36,527,670	37,385,550	38,405,840
Zinc	10,654,196	24,054,182	27,267,732	30,964,794	44,699,166	37,772,224
Quicksilver	1,302,586	1,103,120	958,153	977,989	1,053,941	813,171
Aluminium	1,920,000	3,246,300	8,955,700	8,084,000	15,089,380	13,845,000
Antimonial lead	.....	.....	1,338,090	1,380,556	1,311,348	1,675,179
Platinum	2,500	5,320	25,277	40,890	45,778	46,530
NON-METALS: (a)						
Fuels:						
Bituminous coal	220,930,313	334,658,294	469,281,719	451,375,819	517,983,445	565,307,658
Penna. anthracite	85,757,851	141,879,000	160,275,302	175,189,392	177,622,626	195,181,127
Coke	.....	72,476,196	99,742,701	84,130,849	111,736,696	128,922,273
Petroleum	75,989,313	84,157,399	127,899,688	134,044,752	163,802,334	237,121,388
Natural gas	.....	41,562,855	70,756,158	74,621,534	84,563,957	87,846,677
Structural Materials:						
Clay products	96,212,345	149,697,188	170,115,974	162,236,181	172,811,275	181,289,132
Cement	13,283,581	35,931,533	68,752,092	66,705,136	67,461,513	93,001,169
Lime	6,797,496	10,941,680	14,088,039	13,689,054	13,970,114	14,648,362
Sand and gravel	.....	11,223,645	21,037,630	21,158,583	23,081,555	22,321,517
Stone	36,970,777	63,798,748	76,520,584	77,108,567	78,284,572	83,732,995
Abrasive Materials:						
Grindstones	710,026	777,606	796,294	907,316	916,339	855,627
Corundum and emery	102,715	61,464	15,077	6,778	6,652	4,785
Garnet	123,475	148,095	113,574	121,748	137,800	183,422
Pumice	.....	5,540	94,943	88,399	86,687	55,408
Oilstones, etc	174,087	244,546	228,694	214,991	232,218	207,352
Chemical Materials:						
Arsenious oxide	.....	32,210	52,305	73,408	190,757	159,236
Borax (crude)	1,018,251	1,019,154	1,201,842	1,569,151	1,127,813	1,491,530
Bromine	140,790	178,914	31,684	110,902	136,201	115,436
Fluorspar	94,500	362,488	430,196	611,447	769,163	736,286
Gypsum	1,627,203	3,029,227	6,523,029	6,462,035	6,563,908	6,744,822
Phosphate rock	5,359,248	6,763,403	10,917,000	11,900,693	11,675,774	11,796,231
Pyrite	749,991	938,492	977,978	1,164,871	1,334,259	1,286,084
Sulphur	88,100	3,706,560	4,605,112	4,787,049	5,256,422	5,479,849
Salt	6,944,603	6,095,922	7,900,344	8,345,692	9,402,772	10,123,139
Pigments:						
Barytes (crude)	188,089	148,803	121,746	122,792	153,313	156,275
Mineral paints	644,089	1,697,130	2,141,654	7,842,583	10,069,588	9,543,306
Zinc oxide	3,667,210	5,520,240	5,238,945			
Miscellaneous:						
Asbestos	16,310	42,975	68,357	119,935	87,959	11,000
Asphalt	415,958	758,153	3,080,670	3,991,109	4,620,731	5,282,370
Bauxite	89,676	240,292	716,258	750,649	768,932	997,698
Chromic iron ore	1,400	375	2,729	1,629	2,753	2,854
Feldspar	180,971	226,157	502,452	579,008	520,562	776,551
Fuller's earth	67,535	214,497	293,709	383,124	305,522	369,750
Glass sand	.....	1,107,730	1,516,711	1,543,733	1,430,741	1,895,991
Graphite	197,579	318,211	335,443	288,465	207,033	293,756
Magnesite	19,333	15,221	74,658	75,000	105,120	77,056
Manganese ore	100,289	36,214	22,892	24,586	15,723	40,480
Manganiferous ore	.....	.....	186,765	114,918	19,942	25,124
Mica	147,960	178,588	337,097	355,804	331,896	353,517
Mineral waters	5,791,805	6,491,251	6,357,590	6,837,888	6,615,671	5,631,391
Quartz	86,351	104,109	193,757	155,122	191,685	.....
Talc & soapstone	383,541	637,062	684,213	1,032,732	1,050,693	1,119,597
Talc, fibrous	499,500	445,000	728,180	613,286	656,270	788,500
Thorium minerals (monazite), and zircon	48,805	163,908	12,006	802	.....	.....
Tungsten ore	11,040	268,676	807,307	407,985	502,158	672,118

(a) "Spot" value, that is, value at the point of production.

MINERAL PRODUCTION BY STATES, 1900–13

(United States Geological Survey)

	1900	1905	1910	1911	1912	1913
METALS:						
COPPER (pounds):						
Alaska	.....	4,900,866	4,311,026	22,314,889	31,926,209	23,423,070
Arizona	118,317,764	226,854,461	297,250,538	303,202,532	359,322,096	404,278,809
California	28,511,225	16,697,489	45,760,200	35,835,651	31,516,471	32,492,265
Colorado	7,826,949	9,404,830	9,307,497	9,791,861	7,963,520	9,052,104
Idaho	290,162	7,321,585	6,877,515	4,514,116	7,182,185	8,710,490
Michigan	145,461,498	230,287,992	221,462,984	218,185,236	231,112,228	155,715,286
Montana	270,738,489	314,750,582	283,078,473	271,814,491	308,770,826	285,719,918
Nevada	407,535	413,292	64,494,640	65,561,015	83,413,900	85,209,536
New Mexico	4,169,400	5,334,192	3,784,609	2,860,400	29,170,400	50,196,881
Tennessee	.....	.....	16,691,777	18,965,143	18,395,256	19,489,654
Utah	18,354,726	54,083,506	125,185,455	142,340,215	132,150,052	148,057,450
GOLD (fine ounces):						
Alaska	395,271	722,026	787,148	774,144	831,981	735,364
Arizona	202,856	130,192	165,113	142,938	183,117	198,406
California	765,109	928,660	988,854	982,544	967,887	979,174
Colorado	1,394,622	1,243,291	992,967	926,568	906,606	876,057
Idaho	83,433	52,032	50,113	56,563	67,810	60,193
Montana	227,266	236,520	179,974	153,341	179,371	160,647
Nevada	97,050	259,246	913,015	917,605	656,722	579,408
New Mexico	40,292	12,858	23,084	30,955	36,506	43,149
Oregon	81,980	60,222	32,960	28,988	36,749	71,495
South Dakota	298,842	334,460	260,266	359,444	378,470	348,988
Utah	192,155	248,691	208,627	227,834	208,623	172,711
Washington	34,743	17,899	38,992	24,407	33,023	31,806
IRON ORE (long tons):						
Alabama	2,759,247	3,782,831	4,801,275	3,955,582	4,776,545	5,333,218
Michigan	9,926,727	10,885,902	13,303,906	8,945,103	12,797,468	12,668,560
Minnesota	9,834,399	21,735,182	31,966,769	23,398,406	34,249,813	36,603,331
New Jersey	344,247	526,271	521,832	359,721	366,822	291,653
New York	441,485	1,139,937	1,287,209	1,057,984	1,167,405	1,420,889
Pennsylvania	877,684	808,717	739,799	514,929	522,172	478,693
Tennessee	594,171	734,770	732,247	469,728	416,885	364,092
Virginia	(i)921,821	.....	903,377	610,871	412,520	492,649
Wisconsin	746,105	859,283	1,149,551	559,763	1,152,250	896,243
IRON, PIG (long tons):						
Alabama	1,184,337	1,604,062	1,969,770	1,617,150	1,987,753	1,924,762
Illinois	1,363,383	2,034,483	2,606,335	2,036,081	2,806,378	2,892,263
New York	292,827	1,198,068	1,895,018	1,537,201	1,973,090	1,967,449
Ohio	2,470,910	4,586,110	5,584,279	5,371,378	7,127,176	6,913,961
Pennsylvania	6,365,935	10,579,127	11,014,652	9,581,109	12,437,685	12,871,349
Tennessee	362,190	372,692	400,269	297,594	339,397	270,481
Virginia	490,617	510,210	402,625	308,789	328,961	380,508
LEAD (short tons):						
Colorado	82,137	56,638	35,685	34,840	37,621	43,949
Idaho	85,444	99,027	99,924	136,278	142,093	158,936
Missouri	.....	(c)104,058	161,659	178,868	177,069	176,116
Utah	48,044	44,996	57,081	68,248	70,156	83,063
Wisconsin	.....	.....	3,884	3,353	2,581	1,866
SILVER (fine ounces):						
Arizona	2,995,500	2,605,700	2,655,700	1,594,428	3,445,500	3,912,000
California	941,400	1,082,000	1,791,600	2,727,336	1,384,800	1,421,500
Colorado	20,483,900	12,942,800	8,523,000	7,530,940	7,933,100	8,989,700
Idaho	6,429,100	8,125,600	7,027,000	7,507,802	7,862,900	9,477,100
Michigan	102,000	253,000	262,200	507,234	543,500	333,700
Montana	14,195,400	13,454,700	12,282,900	11,116,778	12,524,000	12,540,300
Nevada	1,358,700	5,863,500	12,366,000	10,651,571	13,851,400	15,657,400
New Mexico	434,300	354,900	779,000	1,142,335	1,460,800	1,666,900
South Dakota	536,200	179,000	120,600	206,188	205,800	172,600
Texas	477,400	417,200	364,400	442,486	379,800	429,800
Utah	9,267,600	10,319,800	10,445,900	12,679,633	13,076,700	11,282,300
Washington	224,500	119,400	204,900	142,196	350,800	218,700
ZINC (short tons):						
Colorado	.....	6,599	23,238	42,233	60,841	58,113
Kansas	62,136	114,287	10,220	6,843	5,668	9,956
Missouri	14,741	11,844	140,652	127,540	149,557	129,018
Montana	.....	.....	12,408	22,115	14,196	35,604
New Jersey	.....	.....	20,217	15,128	16,941	24,247
Utah	.....	.....	7,221	7,004	7,756	9,503
Wisconsin	.....	.....	19,752	31,809	34,137	33,743

MINERAL PRODUCTION BY STATES, 1900–13—*Continued*

	1900	1905	1910	1911	1912	1913
NON-METALS:						
CEMENT (barrels):						
California	44,565	1,225,429	5,805,098	6,317,701	5,974,299	6,159,182
Illinois	240,442	1,545,500	4,459,450	4,582,341	4,299,357	5,083 799
Indiana	30,000	3,127,042	7,219,199	7,407,830	9,924,124	10,872,574
Iowa	.....	.....	.....	1,952,590	3,228,192	3,623,674
Kansas	80,000	230,686	5,655,808	4,871,903	3,225,040	3,374,836
Michigan	664,750	2,773,283	3,687,719	3,686,716	3,494,621	4,186,236
Missouri	.....	3,879,542	4,455,589	4,114,859	4,355,741	4,803,338
New Jersey	1,169,212	3,654,777	4,184,698	4,411,890	4,246,803	4,460,027
New York	465,832	2,111,411	3,296,350	3,314,217	4,492,806	5,208,020
Pennsylvania	4,984,417	13,813,487	26,675,978	26,864,679	26,441,338	28,701,845
COAL (short tons):						
Alabama	8,394,275	11,866,069	16,111,462	15,021,421	16,100,600	17,678,522
Arkansas	1,447,945	1,934,673	1,905,958	2,106,789	2,100,819	2,234,107
Colorado	5,244,364	8,826,429	11,973,736	10,157,383	10,977,824	9,232,510
Illinois	25,767,981	38,434,363	45,900,246	53,679,118	59,885,226	61,618,744
Indiana	6,484,086	11,895,252	18,389,815	14,201,355	15,285,718	17,165,671
Iowa	5,202,939	6,798,609	7,928,120	7,331,648	7,289,529	7,525,936
Kansas	4,467,870	6,423,979	4,921,451	6,178,728	6,986,182	7,202,210
Kentucky	5,328,964	8,432,523	14,623,319	14,049,703	16,490,521	19,616,600
Maryland	4,024,688	5,108,539	5,217,125	4,685,795	4,964,038	4,779,839
Michigan	849,475	1,473,211	1,534,967	1,476,074	1,206,230	1,231,786
Missouri	3,540,103	3,983,378	2,982,433	3,836,107	4,339,856	4,318,125
Montana	1,661,775	1,643,832	2,920,970	2,976,358	3,048,495	3,240,973
New Mexico	1,299,299	1,649,933	3,508,321	3,148,158	3,536,824	3,708,806
Ohio	18,988,150	25,552,950	34,209,668	30,759,986	34,528,727	36,200,527
Oklahoma	1,922,298	2,924,427	2,646,226	3,074,242	3,675,418	4,165,770
Pennsylvania: Anth	57,367,915	77,659,850	84,485,236	90,464,067	84,361,598	91,524,922
Pennsylvania: Bitum	79,842,326	118,413,637	150,521,526	144,561,257	161,865,488	173,781,217
Tennessee	3,509,562	5,766,690	7,121,380	6,433,156	6,473,228	6,903,784
Texas	968,373	1,200,684	1,892,176	1,974,593	2,188,612	2,429,144
Utah	1,147,027	1,332,372	2,517,809	2,513,175	3,016,149	3,254,828
Virginia	2,393,754	4,275,271	6,507,997	6,864,667	7,846,638	8,828,068
Washington	2,474,093	2,864,926	3,911,899	3,572,815	3,360,932	3,877,891
West Virginia	22,647,207	37,791,580	61,671,019	59,831,580	66,786,687	71,308,982
Wyoming	4,014,602	5,602,021	7,533,088	6,744,864	7,368,124	7,393,066
COKE (short tons):						
Alabama	2,110,837	2,576,986	3,249,027	2,761,521	2,975,489	3,323,664
Colorado (*d*)	618,755	1,378,824	1,346,211	1,177,023	972,941	879,461
Illinois	.....	10,307	1,514,504	1,610,212	1,764,944	1,859,553
New Mexico	44,774	89,638	401,646	381,927	413,906	467,945
Ohio	72,116	277,130	282,315	311,382	388,669	351,846
Pennsylvania	13,357,295	20,573,736	26,315,607	21,923,935	27,438,693	28,753,444
Tennessee	475,432	468,092	322,756	330,418	370,076	364,578
Virginia	685,156	1,499,481	1,493,655	910,411	967,947	1,303,603
West Virginia	2,358,499	3,400,593	3,803,850	2,291,049	2,465,986	2,472,752
NATURAL GAS (values):						
California	$79,083	$133,696	$476,697	$800,714	$1,134,456	$1,883,450
Illinois	1,700	7,223	613,642	687,726	616,467	574,015
Indiana	7,254,539	3,094,134	1,473,403	1,192,418	1,014,295	948,278
Kansas	356,900	2,261,836	7,755,367	4,854,534	4,264,706	3,288,394
New York	335,367	623,251	1,678,720	1,418,767	2,343,379	2,425,633
Ohio	2,178,234	5,721,462	8,626,954	9,367,347	11,891,299	10,416,699
Oklahoma	.....	130,137	3,490,704	6,731,770	7,406,528	7,436,389
Pennsylvania	10,215,412	19,197,336	21,475,057	18,010,796	22,823,725	21,695,845
West Virginia	2,959,032	10,075,804	23,816,553	28,451,907	29,064,968	34,164,850
PETROLEUM (bbls.):						
California	4,324,484	33,427,473	73,010,560	81,134,391	86,450,767	97,788,525
Colorado	317,385	376,238	239,794	226,926	206,052	188,799
Illinois	200	181,084	33,143,362	31,317,038	28,601,308	23,893,899
Indiana	4,874,392	10,964,247	2,159,725	1,695,289	970,009	956,099
Kansas	74,714	*f*12,013,495	1,128,668	1,278,819	1,592,796	2,375,029
Louisiana	.....	8,910,416	6,841,395	10,720,420	9,263,439	12,498,828
New York	.....	1,117,582	1,053,838	952,515	874,128	902,211
Ohio	22,362,730	16,346,660	9,916,370	8,817,112	*g*8,969,007	8,781,468
Oklahoma	6,472	(*g*)	52,028,718	56,069,637	51,427,071	63,579,384
Pennsylvania	.....	10,437,195	8,794,662	8,248,158	7,837,948	7,963,282
Texas	836,039	28,136,189	8,899,266	9,526,474	11,735,057	15,009,478
West Virginia	16,195,675	11,578,110	11,753,071	9,795,464	12,128,962	11,567,299

a Includes production of Indiana. *b* Includes production of Minnesota. *c* Includes production of entire Mississippi Valley. *d* Includes production of Utah. *e* Includes production of Tennessee. *f* Includes production of Oklahoma. *g* Included with figures for Kansas. *h* Includes production for North Carolina and South Carolina. *i* Includes production of West Virginia. *j* Includes production of Michigan.

IMPORTS AND EXPORTS OF MINERAL PRODUCTS, 1900–14

(*U. S. Statistical Abstract*)

(000 omitted)

	1900	1905	1909	1910	1911	1912	1913	1914
IMPORTS:								
Aluminium	.....	.....	.....	.....	.....	$2,068	$5,155	$4,148
Antimony (ore and metal)	$341	$363	$815	$551	$541	693	1,134	696
Asbestos, unmanufactured	293	706	1,021	1,122	1,318	1,378	1,760	1,678
Manufactures of	15	53	220	269	293	336	395	391
Bismuth	225	305	274	316	321	305	.....	.....
Cement	.....	1,276	712	602	324	168	122	160
Clays or earths	1,035	1,272	1,777	2,076	2,107	2,036	2,394	2,246
Coal	4,476	3,906	3,598	4,469	5,018	3,722	4,376	3,700
Coke	232	835	777	521	558	268	463	537
Copper (including ore and matte)	3,032	4,892	8,697	9,272	7,659	9,363	13,667	13,696
Manufactures of	12,457	19,942	29,378	30,938	32,013	35,843	45,909	40,809
Emery and other abrasives	201	309	285	473	502	.....	.....	.....
Phosphates, crude	504	750	137	152	.....	.....	.....	.....
Gold	44,573	53,648	44,003	43,339	73,607	48,936	69,194	66,538
Iron and Steel:								
Iron ore	1,497	1,670	2,714	6,763	6,691	6,119	7,035	6,984
Pig iron, including ferro-silicon	2,109	2,989	3,509	6,289	6,056	3,679	6,402	1,782
Scrap iron and steel	562	174	61	1,507	304	151	463	346
Manufactures of	17,806	20,346	18,869	33,213	29,623	22,720	26,771	26,550
Lead, ore and base bullion	3,128	3,616	4,436	3,643	4,038	3,834	3,397	1,987
Pig and manufactured	27	296	234	279	167	109	19	.....
Manganese, ore and oxide of	2,693	1,661	1,243	1,592	1,453	1,292	2,196	1,841
Marble and manufactures of	812	1,308	1,230	1,552	1,477	1,384	1,393	1,335
Nickel ore and matte	1,070	1,205	2,544	3,618	3,946	4,565	6,398	6,109
Oils, mineral	220	494	329	610	2,143	3,654	9,216	13,665
Plaster rock	242	361	356	426	422	.....	.....	.....
Platinum	1,832	1,959	1,882	3,345	3,983	5,013	5,213	3,975
Salt	625	496	428	395	401	364	377	323
Silver	35,256	27,484	43,954	45,217	45,937	47,050	41,268	30,326
Sulphur	1,224	1,694	2,462	2,626	3,108	3,919	4,111	3,695
Talc	1	47	93	115	83	117	.....	.....
Tin	19,104	23,378	26,007	30,869	37,935	46,214	53,112	39,422
Zinc, ore	.....	229	1,027	1,139	937	727	831	251
Manufactures of	171	60	219	870	282	719	1,911	364
EXPORTS:								
Aluminium and manufactures of	244	175	341	666	1,330	1,144	1,046	1,101
Asbestos and manufactures of	93	234	268	312	404	520	688	687
Asphaltum and manufactures of	121	291	425	702	868	1,170	1,640	1,493
Cement	163	1,484	1,143	2,292	4,349	5,083	5,822	3,382
Coal	19,502	29,158	37,316	40,512	45,013	52,648	65,097	59,921
Coke	1,233	2,228	2,752	3,077	3,300	2,938	3,318	2,785
Copper, ore and matte	1,009	1,338	1,417	1,304	1,095	3,123	2,958	3,257
Manufactures of	57,852	86,225	85,290	88,004	108,813	113,958	140,164	146,222
Emery and corundum	170	347	592	872	1,347	1,654	2,331	.....
Gold	48,266	92,594	91,531	118,563	22,509	57,328	77,762	112,038
Graphite	21	43	293	302	407	452	496	656
Iron and Steel:								
Iron ore	79	581	1,264	1,637	2,496	2,806	3,684	3,401
Pig iron	.....	828	816	1,353	2,475	2,658	4,141	2,859
Scrap iron and steel	749	270	407	281	794	1,196	1,435	841
Manufactures of	118,039	133,630	143,727	177,497	227,454	264,299	304,605	251,480
Lead, manufactures of	205	499	581	481	729	626	589	2,610
Marble and Stone:								
Unmanufactured	120	227	239	413	607	688	609	676
Manufactures of	1,556	1,055	956	1,034	1,082	1,179	1,625	1,470
Nickel, nickel oxide and matte	1,219	3,196	3,395	4,532	6,004	8,749	9,275	9,403
Manufactures of	.....	97	12	80	252	42	.....	.....
Oils, mineral	75,611	79,793	105,999	99,090	98,115	112,472	137,237	152,174
Phosphate rock	6,376	6,886	8,105	7,454	9,068	8,982	9,524	10,617
Plaster of Paris	.....	16	14	6	16	20	391	283
Platinum	61	10	14	43	105	178	.....	.....
Quicksilver	556	653	153	256	20	14	21	32
Salt	55	190	237	286	329	383	441	542
Silver	56,712	48,848	55,682	55,286	64,749	64,890	71,614	54,965
Tin, scrap	44	29	104	64	46	77	.....	.....
Manufactures of	387	721	772	879	999	1,234	1,453	1,477
Zinc, ore and dross	1,205	1,765	1,099	881	949	955	690	588
Manufactures of	1,669	1,319	371	196	829	1,350	1,063	406

XIX. MANUFACTURES

W. M. Steuart

INDUSTRIAL CONDITIONS

Legislation Affecting Industries.—There were many influences at work during the year that suggested caution and conservatism in all industrial undertakings, and almost the entire period was one of great irregularity in manufacturing activities. The feature that received the most serious consideration, and which apparently had the effect of retarding development, at least during the first half of the year, was the tendency to enact legislation to control or restrict industrial enterprises. The first year of the Democratic Administration was to an unusual degree a period of practical achievement in legislation that had a direct or indirect bearing on manufactures. It was the first year of operation under the new tariff. The reorganization of the finances of the country in conformity with the provisions of the Federal Reserve Act involved considerable readjustment of the banking system. The income tax was put in operation as a part of the scheme of Federal revenue. Trading in cotton on the exchanges was regulated and restricted by legislation. A Federal Trade Commission was established for the investigation and control of corporations engaged in interstate commerce, and the Sherman Act was extended by the Clayton Anti-Trust Act, which makes guilt personal. The law granting exemption from tolls to coastwise shipping passing through the Panama Canal was rescinded. (See also I, *American History.*)

It was claimed that the feeling of uncertainty during the period in which these laws were being tried out and investigations being made tended to retard development. The tendency of the Administration to foster legislation for the regulation of large industrial enterprises was commented on freely in the press, and in many instances adversely. There was a great protest, especially in the eastern states and in business centers, in response to the President's statement that the depression of business was based on "psychological" reasons. The impression that legislative action, either in the enactment of laws or in the conduct of investigations, was having a depressing effect on manufactures became so pronounced in some branches of industry that certain organizations petitioned the President to postpone further action of this character until business had time for readjustment. The President replied that there was no material condition or substantial reason why business should not be in the most prosperous and expanding condition.

General Conditions During the Year.—The weekly commercial reports on industrial conditions do not indicate a profound or long continued depression during the year. The year 1913 was one of the most successful from an agricultural standpoint that the country has ever experienced, and the export trade in these products touched figures never before attained. At the close of that year the leading industries, except iron and steel, indicated fairly satisfactory conditions. The principal railroads petitioned the Interstate Commerce Commission for permission to increase freight rates. The decision on this petition was delayed and the railway companies deferred making purchases or entering upon new improvements. This action retarded activities in many branches of manufactures. During the winter and spring months industrial activities were characterized as irregular. The manufacturers of textiles were,

as a rule, well engaged. The manufacture of iron and steel was apparently the one important industry in which there was a persistent tendency toward depression. The production of all kinds of pig iron during the first half of the year was considerably less than during the last half of the preceding year and there was even a greater reduction when compared with the first half of 1913. The falling off in the production, however, does not measure the full extent of the loss sustained by the industry during the half year. In addition, the prices dropped to the lowest level reached in a long period of time. The situation in the majority of industries, however, was benefited by the absence of large stocks. As the spring season advanced there was a general tendency toward improvement, and greater optimism. The growth of confidence was especially manifest in the agricultural sections and was aided by the government reports indicating large crops in all the staple products. (See also XIII, *Economic Conditions.*)

Effect of the European War on Manufactures.—The uncertainty attending industrial activity so pronounced in the early months of the year had been overcome to some extent, and the discontent incident to legislative activities largely counteracted when the European political complications caused acute unsettlement there, and as a precautionary measure the security markets in this country were closed. On Aug. 4 Great Britain entered the European War. This action had more direct and serious effect on the industrial activities of the United States than any other event of the year. Foreign trade was immediately disorganized, very quickly the value of imports exceeded exports and the net balance of trade was against us. There was a great diversity of opinion in the technical and general press concerning the immediate as well as the ultimate effect of the European War on our manufactures. It was evident that the United States would be called on to supply a large part of the foodstuffs needed by Europe, as well as to fill a great many of our domestic requirements for finished goods that had previously been imported; with the exception of foodstuffs and war supplies there would be a rapid falling off in the European demand.

The industries in which dyestuffs are used and the manufacture of chemicals, druggists' preparations and similar products were among the first to be affected. A large proportion, probably 90 per cent., of the dyestuffs used in the United States, were imported from Germany, England, Switzerland, and France. By far the largest quantity of imported dyes, especially the newer and more desirable varieties, come from Germany. The blockade of the German ports stopped this supply completely. This was most disastrous to our carpet and rug factories, as well as to the wallpaper, linoleum, leather, upholstery, and other industries in which large quantities of dyes and coloring matter are used. There are a few prominent aniline-dye manufacturers in this country, and they were immediately urged to begin the manufacture of dyes similar to those heretofore imported.

The United States is one of the largest drug-consuming, though the smallest drug-producing, countries of the world. The war, therefore, found instant reflection in the drug industry by halting the gathering and shipping operations abroad at a time when a large percentage of the European botanical drug crops were being harvested, and those of Asia and Africa were awaiting shipment.

The war should certainly stimulate the domestic manufacture of laces, veilings, trimmings, toys, silks, velvets, perfumes, and other articles which were largely made in France, Germany, or Austria. The consensus of opinion seems to be that in general the war would be of advantage to the American manufacturers; by the first of October orders were being received from the belligerent nations for various products, and manufacturers were beginning preparations to capture at least a part of the Latin-American trade which has been largely monopolized by European countries.

Magnitude of Domestic Manufactures.—The Federal Government has been making arrangements for the next quinquennial census of manufactures which will cover the calendar

year 1914. The Director of the Census has inaugurated the practice of conferring with associations of manufacturers, as well as with individual companies, in regard to the scope of the census, and the features of the different industries to be covered by the various schedules. This action was taken because many manufacturers complained that they had not been consulted in regard to the data to be included in the census, although they were required to make the reports at their own expense and the statistics were supposed to be largely for their benefit. Numerous suggestions have been made for changes in the census inquiries, and the Bureau has given the assurance that every effort will be made to complete the enumeration and publish the results much earlier than at preceding censuses.

One of the objects of the census is to show the magnitude of our manufactures. In the absence of official figures the following estimate may be accepted as the total for operations of all establishments during 1914:

	1914[1]	1909
Number of establishments	321,000	268,491
Persons engaged in manufactures	9,144,000	7,678,578
Proprietors and firm members	321,000	273,265
Salaried employees	1,061,000	790,297
Wage earners (average number)	7,762,000	6,615,046
Primary horsepower	23,863,000	18,675,376
Capital	$24,181,000,000	$18,428,269,706
Services	5,546,000,000	4,365,612,851
Salaries	1,303,000,000	938,574,967
Wages	4,243,000,000	3,427,037,884
Materials	15,785,000,000	12,142,790,878
Value of products	26,550,000,000	20,672,051,870

[1] Estimated.

Financial Failures in Manufactures.—During the first nine months of the year there were 3,221 failures in manufacturing enterprises, with liabilities amounting to $94,195,478. During the corresponding period for 1913 there were 3,042 failures, with liabilities of $88,058,194. The failures by months for the two years, as reported in *Dun's Review*, were as follows:

	Number		Liabilities	
	1914	1913	1914	1913
Jan.	407	395	$16,780,939	$8,762,357
Feb.	374	340	6,335,413	14,172,504
March	366	317	11,528,528	7,699,806
April	347	341	6,424,059	6,652,356
May	322	313	10,340,189	7,839,778
June	297	343	9,568,017	10,366,468
July	360	290	9,474,100	7,990,054
August	327	351	16,168,970	11,254,770
Sept.	421	352	7,575,263	13,320,101

Foreign Trade.—While the abnormal business conditions created by the war continued and caution and retrenchment characterized manufactures, there was a slow but steady tendency toward improvement. By October representatives of the belligerent countries, except Germany and Austria-Hungary, were purchasing military supplies, automobiles, cotton products and other commodities in large quantities. The balance of trade again shifted to the export side, which in September exceeded the imports by $16,247,722, against an excess of imports amounting to $19,398,776 in August. There was considerable improvement in the financial situation and plans were apparently maturing to handle the great commerce expected to come to the United States. (See also XIII, *Economic Conditions.*)

Exports of Manufactures.—The partially manufactured and finished products exported during the first eight months of 1913 amounted to $1,016,177,575. The total for the same months of 1914 was $833,290,276. Considering each month of 1914, the value of the exports of manufactures was less than the value for the corresponding months of 1913. As the year advanced these differences became more pronounced, until the European War caused them to drop to a most alarmingly low figure. While the exports of manufactured products have never been sufficient to be a controlling factor in the industrial activities of the country, they

are of considerable importance and the decrease was one of the reasons for the unsatisfactory conditions that prevailed throughout 1914. The exports of manufactures by months were as follows:

	Total, Including Manufactures Ready for Consumption		Foodstuffs Partly or Wholly Manufactured		Manufactures for Further Use in Manufacturing	
	1913	1914	1913	1914	1913	1914
January	$129,994,646	$111,137,599	$30,875,188	$29,179,696	$34,618,264	$29,522,534
February	125,132,610	102,330,715	31,267,405	22,153,990	31,643,366	28,491,259
March	132,584,703	119,585,317	28,759,084	22,989,066	35,216,394	32,856,618
April	133,886,701	113,990,379	26,178,111	19,588,017	37,044,590	31,844,607
May	133,250,762	109,112,916	24,937,913	20,117,749	37,050,329	30,431,865
June	120,940,209	109,900,929	23,737,499	20,075,216	31,453,499	31,755,039
July	117,680,583	100,091,674	23,138,221	17,988,203	33,730,895	29,584,204
August	122,694,871	67,162,412	23,957,583	18,596,504	34,026,345	16,208,545

The Textile Industries.—The textile manufacturers were among those most concerned in the new tariff regulations, and there was considerable uncertainty as to the effect of the reduction in duties. While there was some irregularity in the activity of the mills during the first half of the year and some reduction in output, by the middle of the year conditions were, on the whole, favorable.

Interest was largely centered on cotton production and manufacture. At the beginning of the year the manufactures, especially in New England, were depressed; the uncertainties attending the active competition of the foreign manufacturers, as well as other conditions, tended to curtail the production. Confidence was gradually being restored when the war demoralized the industry. Measured by the mill consumption and active spindles, the industry was wonderfully stable during the entire year, and, in fact, showed some advancement over 1913.

COTTON CONSUMPTION, TRADE AND MANUFACTURE

Month	Year	Cotton (bales)				Active Cotton Spindles
		Consumed	Imported	Exported	On hand	
September	1913	470,132	7,449	930,328	1,989,831	30,634,381
	1912	436,161	8,930	729,859	2,100,252	29,775,039
October	1913	543,315	5,569	1,517,891	3,620,213	30,855,360
	1912	513,060	10,571	1,515,746	3,730,304	30,030,733
November	1913	482,598	7,281	1,501,259	4,782,716	30,949,337
	1912	475,511	9,452	1,734,687	4,711,727	30,072,579
December	1913	478,255	15,815	1,230,830	5,160,234	31,004,716
	1912	445,275	24,846	1,391,394	4,940,569	30,153,747
January	1914	540,910	19,624	1,052,272	4,741,643	31,098,178
	1913	533,743	52,022	900,931	4,570,041	30,359,843
February	1914	477,629	20,771	751,013	4,174,772	31,139,730
	1913	471,213	34,039	530,911	4,232,200	30,536,486
March	1914	518,074	30,863	695,310	3,674,411	31,083,858
	1913	485,573	27,889	372,073	3,762,838	30,575,028
April	1914	526,282	32,917	398,223	3,091,347	31,014,038
	1913	503,990	20,776	534,596	3,133,263	30,572,108
May	1914	493,621	40,114	394,714	2,456,113	31,028,336
	1913	509,320	13,820	468,966	2,443,675	30,556,177
June	1914	473,138	49,010	295,578	1,911,777	30,948,048
	1913	466,512	8,019	223,921	1,935,552	30,046,121
July	1914	471,819	23,790	126,211	1,447,448	30,676,835
	1913	486,992	9,496	140,710	1,440,841	30,022,654
August	1914	408,960	27,087	21,210	1,327,816	30,347,970
	1913	458,980	7,785	257,172	1,273,438	30,602,282
12 months ending	1914	5,884,733	280,290	8,914,839	.....	32,107,572
	1913	5,786,330	227,645	8,800,966	.....	31,519,766

The statistics indicate that for the country as a whole normal conditions prevailed in the industry. In some localities, however, there was at times considerable depression. Considering the commercial year, which ended Aug. 31, the consumption of cotton in manufactures exceeded all previous records, although it was reported that the cotton-mill business was less remunerative than during the preceding years. There was a considerable addition to the spindlage during the year, especially in the southern states. With the declaration of war the export of cotton ceased. The exports of raw cotton during the fiscal year 1914 amounted to $610,475,301, and formed 26 per cent. of the total exports. It exceeds in value that of manufactures of iron and steel, breadstuffs, and mineral oils combined, the next three classifications in the order of importance. The exports of raw cotton and linters during the year ending Aug. 31, 1914, was equal to 61 per cent. of the total production from the crop of 1913. The exports of cotton manufactures during the fiscal year 1914 amounted to $51,467,233; of cotton-seed oil, $13,843,179; of cotton-seed cake and meal, $11,007,441; and of cotton seed, $215,115. The complete cessation of this enormous export trade necessarily demoralized the domestic industry. The price of cotton dropped from 13 to eight cents or less per pound. The exports cannot regain normal conditions while the European War continues. England is the principal purchaser of American cotton, and while her takings will probably increase notwithstanding the war, it will be necessary for the domestic mills greatly to increase their output in order to give permanent relief. During September the consumption of cotton by American establishments amounted to 442,583 bales, as compared with 408,960 bales in August and 470,132 bales in September, 1913. While the consumption was considerably less than during the same period of 1913, the tendency in 1914 was toward an increase. (See also XIII, *Economic Conditions;* and XVII, *Agriculture.*)

The Iron and Steel Industry.—The statistics of the production of pig iron show that the annual output increased from 53,908 long tons in 1810 to 30,966,152 long tons in 1913. The production was the largest annual output in the history of the industry, and exceeded that of 1912, which was the next largest, by 1,239,215 tons. Basic iron made with mineral fuel was the principal grade manufactured during 1913, the production amounting to 12,536,693 long tons. Of the total production 30,326,130 long tons, or 98 per cent., was bituminous, chiefly coke pig iron.

A large production of steel was a concomitant of the unusual output of pig iron. The production of all kinds of steel ingots and castings for 1913 amounted to 31,300,874 long tons, while that of 1912 was 31,251,303 long tons. Notwithstanding this great activity, the year 1913 ended with numerous idle plants, and it was estimated that the steel works were being operated at barely 50 per cent. of their capacity. These conditions extended over the first part of 1914, and the lowest daily average production of pig iron was reached during January, when it amounted to about 60,808 tons; the highest average, 75,738 tons, was reported for March. These averages are very low as compared with those for prior years. The range during 1913 was from 82,057 tons in August to 92,369 in February. The production for the first half of 1914 amounted to 12,536,094 tons, as compared with 16,488,602 for the first half of 1913. Detailed figures are given on another page (see XIII, *Economic Conditions*).

During January the industry experienced one of the longest and most extensive holiday shutdowns of its history. By the latter part of January there was some increase in the volume of business. The rolling-mill operations gradually increased, and the largest monthly production of pig iron, 2,347,867 tons, was reported for March. There was a decrease in the output during April, and the production continued to fall off. In June there were about 197 active furnaces representing a daily production of about 63,916 tons, or only slightly more than the rate in December, 1913, when the industry was at its lowest ebb. During September the industry was stimulated to some extent by in-

quiries from European governments for material to be used in connection with the war, and by some large purchases for that purpose, but the year closed with apparently no immediate prospects of definite improvement.

CENSUS OF OCCUPATIONS

The Census Enumeration.—Since 1850 the regular decennial census has included statistics of the gainful occupations of the population. The census recognizes, however, the impossibility of making a classification of occupations sufficiently broad and detailed to cover all the various activities of the millions of gainful workers in the country. In many cases there is no definite line of demarcation between industries. Processes which generally are considered as belonging to separate and distinct industries frequently are performed in one and the same establishment. This makes it impossible, in many cases, to determine in which of two closely related industries a given person works. Hence, it is impossible to classify all workers properly according to any definite and logical scheme. A workman may make the whole of an article, or perform several of the processes in its manufacture, or perform only one of them. It is, therefore, impossible to classify with complete accuracy occupations which are not clear cut and well defined. In addition to these difficulties, due to the industrial organization of the country, the census has to contend with the indifferent work of the temporarily employed enumerators. There were about 70,000 enumerators employed on the enumeration of 1910. They were required to obtain answers to 32 items of inquiry, and in the vast majority of cases the answers were furnished by persons ignorant, indifferent, or not trained in making accurate statements. General and indefinite terms were frequently used. The census officials have been constantly endeavoring to overcome these difficulties by making the inquiries more definite, by more thorough instruction to the enumerators, and by improving the scheme and methods followed in classifying the occupations and compiling the data. The inquiries for the Thirteenth Census called for: (1) trade or profession of, or particular kind of work done by, each person engaged in gainful labor; (2) general nature of industry, business or establishment in which the person worked; (3) whether the person was an employer, an employee, or working on his own account; (4) if an employee, whether he was out of work on April 15, 1910; (5) if an employee, the number of weeks he had been out of work during the calendar year 1909. The enumerators were required to report an occupation for every person engaged in gainful labor, irrespective of age. The term "gainful workers" included all workers, except women doing housework in their own homes without salary or wages and having no other employment, and children working at home merely on general household work, on chores, or, at odd times, on other work.

There was such a mass of work incident to the Thirteenth Census that it was impossible to give the statistics of occupations much consideration until after the completion of the reports on the other subjects which were considered of greater importance. The first volume was published June 20, 1914. It contains the results of what is known as the first count of occupations. The statistics are presented for 428 occupation groups and subgroups in the different states and also for each city of over 25,000 inhabitants. Only persons ten years of age and over are covered by the report, as no attempt has thus far been made to tabulate the data for the employment of children under that age. Separate totals are given for males and females in each occupation, and five classes of population are distinguished, namely, native white of native parentage; native white of foreign or mixed parentage; foreign-born white; Negro; Indian, Chinese, Japanese, and all other. Distinction is also made according to five age groups, namely, 10 to 13; 14 to 15; 16 to 20; 21 to 44 (including age unknown); 45 and over.

Another tabulation is now in progress to develop detailed statistics by sex, with respect to color or race, nativity, and parentage, in combination with ten age periods; marital condi-

tion; country of birth of the foreign-born; class of worker; and, for wage workers only, unemployment on census day (April 15, 1910) and weeks unemployed in 1909. This tabulation will also distinguish the five classes of population covered by the first tabulation. It will show the distribution of all persons occupied, by sex, according to color or race, nativity, and parentage, and age periods in detail; occupations of women; occupations of children; occupations of foreign-born workers by country of birth; occupations by class of worker; and unemployment data for wage workers only.

Persons Engaged in Gainful Occupations.—The total number and the proportion to the total population of persons engaged in gainful occupations for the last four censuses are given in the following table:

	Total Population	Population 10 Years of Age and Over	Persons 10 Years of Age and Over Engaged in Gainful Occupations		
			Number	Per cent. of Total Population	Per cent. of Population 10 Years of Age and Over
Both Sexes					
1910	91,972,266	71,580,270	38,167,336	41.5	53.3
1900	75,994,575	57,949,824	29,073,233	38.3	50.2
1890[1]	62,622,250	47,413,559	23,318,183	37.2	49.2
1880	50,155,783	36,761,607	17,392,099	34.7	47.3
Male					
1910	47,332,277	37,027,558	30,091,564	63.6	81.3
1900	38,816,448	29,703,440	23,753,836	61.2	80.0
1890[1]	32,067,880	24,352,659	19,312,651	60.2	79.3
1880	25,518,820	18,735,980	14,744,942	57.8	78.7
Female					
1910	44,639,989	34,552,712	8,075,772	18.1	23.4
1900	37,178,127	28,246,384	5,319,397	14.3	18.8
1890[1]	30,554,370	23,060,900	4,005,532	13.1	17.4
1880	24,636,963	18,025,627	2,647,157	10.7	14.7

[1] Figures for 1890 are exclusive of persons in Indian Territory and on Indian reservations, areas specially enumerated at that census, but for which occupation statistics are not available.

Differences in the proportion of the population engaged in gainful occupations usually result from differences either in the sex or the age composition of the population, in the proportion of foreign-born or of Negroes in the population, in the proportion of the population living in urban areas, or in the industrial activities of the people. Since 1880 there has been a constant increase in the proportion of the population employed in the gainful occupations. The largest increase in this proportion is shown for 1910 as compared with 1900, and was due in part to the increase in the number of women and children reported, especially those engaged in agricultural pursuits. A part of this increase probably was due to a difference in the basis of enumeration at the two censuses. The instructions for 1910 were more explicit and emphatic in regard to reporting occupations for women and children than at preceding censuses, especially for those doing farm work. After making full allowance for a possible excess in the number of females reported at work in 1910, the increase in the proportion of females ten years of age and over engaged in gainful occupations appears to have been much greater during the decade 1900 to 1910 than during either of the two preceding decades.

Distribution by Sex.—Of the total number reported as employed in 1910, 30,091,564, or 78.8 per cent., were males and 8,075,772, or 21.2 per cent., were females. The largest number of males was reported for agricultural pursuits, while the greatest number of females is shown for domestic and personal service, which was the only general division of occupations in

DISTRIBUTION AMONG GENERAL CLASSES OF OCCUPATIONS

	1910		1900		1890		1880	
	Number	Distribution	Number	Distribution	Number	Distribution	Number	Distribution
BOTH SEXES: All occupations	38,167,336	100.0 per cent.	29,073,233	100.0 per cent.	23,318,183	100.0 per cent.	17,392,099	100.0 per cent.
Agricultural pursuits	12,567,925	32.9	10,381,765	35.7	9,148,448	39.2	7,713,875	44.4
Professional service	1,825,127	4.8	1,258,538	4.3	944,333	4.0	603,202	3.5
Domestic and personal service	5,361,033	14.0	5,580,657	19.2	4,220,812	18.1	3,418,793	19.7
Trade and transportation	7,605,730	19.9	4,766,964	16.4	3,326,122	14.3	1,871,503	10.8
Manufacturing and mechanical pursuits	10,807,521	28.3	7,085,309	24.4	5,678,468	24.4	3,784,726	21.8
MALE: All occupations	30,091,564	100.0	23,753,836	100.0	19,312,651	100.0	14,744,942	100.0
Agricultural pursuits	10,760,875	35.8	9,404,429	39.6	8,378,603	43.4	7,119,365	48.3
Professional service	1,151,709	3.8	827,941	3.5	632,646	3.3	425,947	2.9
Domestic and personal service	2,740,176	9.1	3,485,208	14.7	2,553,161	13.2	2,237,493	15.2
Trade and transportation	6,403,378	21.3	4,263,617	17.9	3,097,701	16.0	1,808,445	12.3
Manufacturing and mechanical pursuits	9,035,426	30.0	5,772,641	24.3	4,650,540	24.1	3,153,692	21.4
FEMALE: All occupations	8,075,772	100.0	5,319,397	100.0	4,005,532	100.0	2,647,157	100.0
Agricultural pursuits	1,807,050	22.4	977,336	18.4	769,845	19.2	594,510	22.5
Professional service	673,418	8.3	430,597	8.1	311,687	7.8	177,255	6.7
Domestic and personal service	2,620,857	32.5	2,095,449	39.4	1,667,651	41.6	1,181,300	44.6
Trade and transportation	1,202,352	14.9	503,347	9.5	228,421	5.7	63,058	2.4
Manufacturing and mechanical pursuits	1,772,095	21.9	1,312,668	24.7	1,027,928	25.7	631,034	23.8

which the women outnumbered the men. In professional service there were four women to every five men, a large proportion of the women being teachers. In clerical occupations one-third of the persons were women. In manufacturing and mechanical industries women constituted one in six, in agriculture, forestry, and animal husbandry one in seven, and in trade one in eight of the gainful workers; they constitute only four per cent. of the persons engaged in transportation, three per cent. of the persons engaged in public service, and but one-tenth of one per cent. of the persons engaged in the extraction of minerals. Domestic and personal service was the principal field of employment for female workers in 1910, 31.3 per cent. of them being engaged in this branch of occupations, as compared with 22.4 per cent. in agriculture, forestry, and animal husbandry, and 22.5 per cent. in manufacturing and mechanical industries. More detailed figures are given in the table on the following page.

The peculiar feature of the Thirteenth Census report on occupations is a detailed presentation of each specific, elementary occupation in each important industry and service group, in so far as such occupation was definitely returned by the enumerators and was of sufficient importance to justify its separate presentation in the final report.

Distribution by Nativity and Race.—In 1910 the native whites of native parentage and the Negroes each constituted a smaller proportion both of the population 10 years of age and over and of the persons engaged in gainful occupations than in 1900; and in 1910 the native whites of foreign or mixed parentage and the foreign-born whites each constituted a larger proportion both of the population 10 years of age and over and of the persons engaged in gainful occupations than in 1900. The relationship between the proportions for the respective classes was the same for the males as for both sexes. In case of the females, however, the native whites of native parentage and the Negroes each constituted in 1910 a smaller proportion of all females ten years of age and over but a larger proportion

DISTRIBUTION AMONG CLASSES OF OCCUPATIONS BY SEX

	Both Sexes		Male		Female	
	Number: 1910	Per cent. Distribution	Number: 1910	Per cent. Distribution	Number: 1910	Per cent. Distribution
All occupations	38,167,336	100.0	30,091,564	100.0	8,075,772	100.0
Agriculture, forestry, and animal husbandry	12,659,203	33.2	10,851,702	36.1	1,807,501	22.4
Extraction of minerals	964,824	2.5	963,730	3.2	1,094	[1]
Manufacturing and mechanical industries	10,658,881	27.9	8,837,901	29.4	1,820,980	22.5
Transportation	2,637,671	6.9	2,531,075	8.4	106,596	1.3
Trade	3,614,670	9.5	3,146,582	10.5	468,088	5.8
Public service (not elsewhere classified)	459,291	1.2	445,733	1.5	13,558	0.2
Professional service	1,663,569	4.4	929,684	3.1	733,885	9.1
Domestic and personal service	3,772,174	9.9	1,241,328	4.1	2,530,846	31.3
Clerical occupations	1,737,053	4.6	1,143,829	3.8	593,224	7.3

[1] Less than one-tenth of one per cent.

of the gainfully occupied females than in 1900. The native white females of foreign or mixed parentage in 1910 formed a larger proportion of all females ten years of age and over but a smaller proportion of the gainfully occupied females than in 1900; and the foreign-born white females in 1910 formed the same proportion of all females ten years of age and over but a smaller proportion of the gainfully occupied females than in 1900. The distribution by nativity and race is shown in the following table:

	Population Ten Years of Age and Over, 1910		Persons Engaged in Gainful Occupations	
	Number	Per cent. Distribution	Number	Per cent. Distribution
Total	71,580,270	100.0	38,167,336	100.0
Native white, native parentage	37,081,278	51.8	17,954,464	47.0
Native white, foreign or mixed parentage	13,908,063	19.4	7,008,090	18.4
Foreign-born white	12,944,529	18.1	7,811,502	20.5
Negro	7,317,922	10.2	5,192,535	13.6
Indian, Chinese, Japanese, and all other	328,478	0.5	200,745	0.5

Distribution by Age Groups.—More than eight in every ten (81.3 per cent.) males ten years of age and over were engaged in gainful occupations in 1910. In the lowest age period, ten to 13, the proportion was one in six (16.6 per cent.); in the next age period, 14 to 15, the proportion more than doubled, being over two in each five (41.4 per cent.); and in the age period 16 to 20 the proportion increased to almost four in five (79.2 per cent.). The proportion was highest for the age period 21 to 44 (including persons of unknown age). In this age period 96.7 per cent. of the males were gainfully occupied; or, stated otherwise, only 3.3 men out of every 100 in this age period were without gainful occupations in 1910. In the highest age period, 45 years and over, the proportion of males gainfully occupied in 1910 dropped to 85.9 per cent. If the two highest age periods be combined, it is found that of all the males 21 years of age and over in the United States in 1910 considerably over nine out of every ten (93.1 per cent.) were engaged in gainful occupations. The detailed figures of distribution by age are given in the following table:

	Males			Females		
	Total Number	Engaged in Gainful Occupations		Total Number	Engaged in Gainful Occupations	
		Number	Per cent.		Number	Per cent.
1910						
10 years and over	37,027,558	30,091,564	81.3	34,552,712	8,075,772	23.4
10 to 13 years	3,665,779	609,030	16.6	3,593,239	286,946	8.0
14 to 15 years	1,798,449	744,109	41.4	1,770,898	350,140	19.8
16 to 20 years	4,564,179	3,615,623	79.2	4,632,821	1,847,600	39.9
21 to 44 years[1]	17,849,843	17,262,209	96.7	16,331,449	4,302,969	26.3
45 years and over	9,149,308	7,860,593	85.9	8,224,305	1,288,117	15.7
1900						
10 years and over	29,703,440	23,753,836	80.0	28,246,384	5,319,397	18.8
10 to 13 years	3,289,701	585,687	17.8	3,221,969	204,936	6.4
14 to 15 years	1,562,726	678,724	43.4	1,538,856	280,831	18.2
16 to 20 years	3,716,714	2,855,425	76.8	3,837,851	1,237,967	32.3
21 to 44 years[1]	14,113,999	13,463,704	95.4	13,187,534	2,759,546	20.9
45 years and over	7,020,300	6,170,296	87.9	6,460,174	836,117	12.9

[1] Includes persons of unknown age.

PATENTS AND INVENTIONS

WALTER F. ROGERS

The Patent Office.—The Patent Office continues to issue patents to the citizens of the United States and to the various foreign countries of the world in great number. The total granted by the end of 1914 will approximate 1,125,000 patents, in addition to approximately 45,000 design patents and a large number of reissued patents and registrations of trade-marks, labels and prints.

In the proportion of patents to population Connecticut still leads with the District of Columbia second. Then follow in order California, New Jersey, New York, Illinois, Colorado, Massachusetts, Nevada, Rhode Island, Washington, Ohio, Pennsylvania, Oregon, Montana, Arizona, and so on, with an interesting combination toward the end of the list comprising in order Vermont, New Mexico, Oklahoma, Texas, Maine, Virginia, Hawaii, and Louisiana. Of the states of the Union, however, South Carolina still maintains its position at the bottom with one patent to every 24,514 of the population. Then running up from the bottom come Mississippi, North Carolina, Alabama, Arkansas, Georgia, Alaska, Tennessee and Kentucky.

In patents to foreigners Germany leads with 1,433. Then come England, 908; Canada, 557; France, 340; Austria-Hungary, 168; and after some intervening countries, Russia, with 48, the countries of South America and various colonies dwindling out at the end with from one to three each.

The Patent Office also maintains its great financial business, the receipts for the year 1913 aggregating $2,084,417.79, giving a surplus for the year of $127,034.51. The surplus will undoubtedly be larger for the year 1914. There is now in the Treasury an accumulated surplus of $7,279,052.46 "earned" in the broad sense by the Patent Office and not expended, as obviously it might have been, in providing needed facilities for the work of examining applications and the other work of the Patent Office. In addition to this sum there are fifty million printed copies of patents held by the Patent Office. Of this number some eleven thousand are used every day, eight thousand of them being sold at five cents each. The total number sold for the year 1913 was 2,340,867, bringing in receipts of $118,043.35. As has been suggested by the Commissioner of Patents, in reality the total surplus of the Office is close to ten million dollars.

The force of the Patent Office at present is 939. There has been an increase of 41.6 per cent. since 1899, a percentage considerably lower than the percentage of increase in receipts and expenditures, applications printed, copies of patents sold, and written copies of records furnished. Apparently, therefore, the Office is increasing in relative efficiency of work. On June 30 the Commissioner of Patents ascertained that there were then pending 139,000 applications for patents. Approximately 32,000 had been pending over two years, 4,200 over five years, 800 over eight years, 240 over ten years, and 80 over 15 years. The Commissioner of Patents is making an effort to lessen the period of pending applications to the end that this may be done by administrative effort without the necessity of legislation.

Patent Litigation.—As noted in the last issue of the YEAR BOOK (p. 542), the evils of patent litigation, the cost, the delays, and the loading of records with irrelevant matters, have been charged to the patent laws. Obviously this cannot be true, because patent causes are tried either at law or in equity precisely as are other causes. The equity rules promulgated by the Supreme Court in 1912 (*A. Y. B.*, 1913, p. 543), which went into effect in February, 1913, were intended to cure the suggested difficulties of equity practice in the Federal courts. They have not, so far, evidenced their value. The Second Circuit is now 300 cases in arrears. In the Third Circuit, and especially in the district of New Jersey, the cases are largely tried under the old practice, that is, by depositions before an examiner, and in many circuits it has been realized that the effort to enforce a trial in "open court" has preceded the provision of sufficient judges for that purpose. The rule providing for the presentation of the record on appeal in a narrative form and specifying that differences between the parties in making up the record shall be decided by the lower court has not commended itself to the bar nor proved its worth in practice.

Patent Legislation.—In accordance with the spirit of the findings of the Commission on Economy and Efficiency (*A. Y. B.*, 1913, p. 541), the Commissioner of Patents urged and the House of Representatives passed a bill (H. R. 18,031) providing for an increase of the examiners-in-chief from three to five, and of the law examiners to five and for other changes in the personnel of the Patent Office to better adapt the force to a scheme of supervision and the elimination of unnecessary actions and appeals; a bill (H. R. 15,220) providing for omitting signatures to drawings and applications; and a resolution (H. J. Res. 257) providing for an exchange of printed copies of patents with Canada, as a prelude to further exchanges and benefits. The Senate Committee on Patents has not taken up these measures for action.

Of the many bills relating to patents directly or indirectly, one of the most important was a renewal of the substantial features of the old revision bill (H. R. 23,417, 62d Cong., 2d sess.), which was elaborately discussed in hearings extending through the month of May, 1912. The bill of the present Congress (H. R. 15,989) was strongly urged and was reported favorably by the House Committee on Patents, though against strong opposition in the Committee and by the bar. The substance of the bill may be quoted as follows:

> The bill provides for limiting a patent to expire nineteen years from date of filing in this country, excluding the time actually consumed by the Patent Office or the courts in consideration of the application, and, where the application has been involved in interference, of the actual time in which it has been so involved, and providing that in no case shall a patent be in force more than seventeen years.
>
> Section 2 of the bill forbids any person selling a patented article from prescribing conditions limiting its subsequent disposition or use. Breach of contract of sale, lease or license of a patented article shall not be ground for suit for infringement. Breach of license to use a patent shall not be ground for suit for infringement.
>
> Section 3 of the bill provides for compulsory license if it should be alleged and proved to the satisfaction of the court "that the patented invention is being withheld or suppressed by the owner of the patent or those claiming under him for the purpose or with the result of preventing any other person from using the patented process, or making, using and selling the patented

article in the United States in competition with another article or process, patented or unpatented, used or made, used and sold in the United States by the owner of the patent or those claiming under him or authorized by him." This application may be made at the expiration of three years from the date of the filing of the application for the patent.

It is provided "that nothing herein contained shall be construed to authorize the court to compel the granting of a license by the original inventor who has not obligated himself or empowered another person to suppress or withhold such invention." An appeal is provided.

The provisions of this section of the bill are made applicable only to patents granted after the passage of the Act.

Section 4 of the bill provides for the designation of a domicile by non-resident owners of patents.

The bill has not yet been acted upon by the House of Representatives and has not been taken up for discussion by the Senate Committee on Patents.

During the year a strong effort was made to amend the Kahn law of 1913 (*A. Y. B.*, 1913, p. 543) which in effect created a new Patent Office at San Francisco for a term including the term of the Panama-Pacific Exposition to grant inalienable patents to foreigners for almost anything without examination. The effort was opposed as a matter of foreign policy by the Secretary of State and others in authority under the impression that offense might be given to the foreign nations which had agreed to exhibit. It is probable that the European War will in any event render the law innocuous.

Another bill introduced in Congress without action (H. R. 18,223) provides that designs "embodied in or applied to any manufactured product of an art or trade" may be registered under what is in substance a copyright law, thus doing away with the examination of designs in the Patent Office, the validity of the designs being tested in case of suits in the courts. Provisions are made for simple court procedure, for penalties, for certifying the record or decree from one circuit to another, and for details of remedies and enforcement.

A résumé of the proposed legislation of the year may be found in the reports of the American Patent Law Association, located at 900 F Street, Washington, D. C.

For some years past there has been an endeavor to fasten upon the patent law stilted and elaborate definitions of monopolies, trusts, etc., which did not obtain favor with the Judiciary committees of Congress. The recent history of the provisions of the Clayton Anti-Trust bill (H. R. 15,657, 63d Cong., 2d sess.) is interesting as indicating the shifting attitude of Congress toward restrictions of license agreements (see also I, *American History*). Section 4 as passed by the House and the substitute section adopted by the Senate were so directly aimed at patents that they brought immediate and strong opposition from those interested in the patent laws. Whether as the result of this opposition or of the strong arguments presented in the conference on the bill, the section which is now the law was substituted as follows:

Sec. 3. That it shall be unlawful for any person engaged in commerce, in the course of such commerce, to lease or make a sale or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or resale within the United States or any Territory thereof or the District of Columbia or any insular possession or other place under the jurisdiction of the United States, or fix a price charged therefor, or discount from, or rebate upon, such price, on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods, wares, merchandise, machinery, supplies or other commodities of a competitor or competitors of the lessor or seller, where the effect of such lease, sale, or contract for sale or such condition, agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce.

The law as it now reads is far less objectionable than the section adopted by the House and superior in every respect to the provision substituted by the Senate. The enactment of this law would appear to render unnecessary some of the provisions of the bill noted above for the revision of the patent laws reported by the House Committee on Patents.

XX. TRADE, TRANSPORTATION, AND COMMUNICATION

GROVER G. HUEBNER

MERCHANT MARINE

Tonnage Afloat.—The latest official figures of documented merchant vessels of the United States, which are for the year ending June 30, 1913, show a total of 27,070 vessels and 7,886,518 gross tons, an increase over the figures for 1912, which aggregated 26,528 vessels and 7,714,183 tons, of 2 per cent. and 2.2 per cent. respectively. More significant, however, is the fact that over one-half of the increase was in registered vessels, and that the steady increase in the registered tonnage from 1910 to 1912 continued throughout the year 1913. The gross-tonnage figures in that year reached a total of 1,027,776 tons, which is larger than at any time during the past 27 years. It is possible that the year 1911 marked a turning point in the history of American carriers engaged in the foreign trade, and that there will be an increase in their tonnage henceforth. Of the total documented gross tonnage registered, enrolled and licensed, steamers formed 67.6 per cent., sailing vessels over 19 per cent., barges over 12 per cent. and canal boats less than one per cent. The number and tonnage of sailing vessels, as usual, decreased, while steam vessels, canal boats and barges showed an increase in both numbers and tonnage. As was the case with the Suez Canal, the opening of the Panama Canal will diminish still further the opportunity for the employment of sailing vessels.

Year Ending June 30	Registered Vessels		Enrolled Vessels		Licensed Vessels Under 20 Tons		Total Documented Merchant Marine	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons
1880....	2,378	1,352,810	16,410	2,649,353	5,924	65,871	24,712	4,068,034
1890....	1,527	946,695	15,153	3,201,481	6,877	85,918	23,467	4,424,497
1895....	1,260	838,187	14,408	3,705,104	7,572	92,669	23,240	4,635,960
1900....	1,330	826,694	13,786	4,239,569	8,217	98,576	23,333	5,164,839
1905....	1,372	954,513	14,126	5,391,802	9,183	110,228	24,681	6,456,543
1909....	1,633	887,505	14,072	6,381,053	9,983	120,197	25,688	7,388,755
1910....	1,526	791,825	14,049	6,593,728	10,165	122,529	25,740	7,508,082
1911....	1,703	872,671	13,433	6,640,820	10,355	125,299	25,991	7,638,790
1912....	2,012	932,101	13,912	6,652,686	10,604	129,396	26,528	7,714,183
1913....	2,305	1,027,776	14,001	6,726,340	10,764	132,402	27,070	7,886,518

Undocumented Craft.—Although the American merchant marine includes many undocumented vessels, which are not included in the above statistics, no reliable returns are available, except the 1906 census report, which contained returns from 19,497 undocumented vessels with a gross tonnage of 6,579,402 tons. A more detailed statement of the returns of the 1906 census was given in the YEAR BOOK for 1910 (p. 523).

Geographical Distribution.—The gain in documented tonnage of 172,335 of 1913 was due almost entirely to increases on the Atlantic-Gulf and Pacific coasts of 117,829 and 65,231 tons respectively, the western rivers showing an increase in tonnage of but 328 tons and the figures for Porto Rico, Hawaii and the Great Lakes having decreased. The geographic distribution of tonnage on June 30, 1913, was as follows:

GEOGRAPHICAL DISTRIBUTION OF AMERICAN DOCUMENTED SHIPPING

	Sailing Vessels		Steam Vessels		Canal Boats		Barges		Total	
	No.	Tons	No.	Tons	No.	Tons	No.	Tons	No.	Tons
Atlantic and Gulf	6,120	1,009,565	8,122	1,975,314	226	25,571	2,456	732,904	16,924	3,743,354
Porto Rico	94	5,884	19	1,890	....	.....	.....	.....	113	7,774
Pacific Coast	549	273,617	2,831	643,072	....	.....	1,197	111,861	4,577	1,028,550
Hawaii	10	8,163	38	12,583	....	.....	.....	.....	48	20,746
Northern Lakes	272	210,401	2,333	2,568,983	472	51,048	370	109,354	3,447	2,939,786
Western Rivers	.....	.....	1,740	133,699	....	.....	221	12,609	1,961	146,308
Total	7,045	1,507,630	15,083	5,335,541	698	76,619	4,244	966,728	27,070	7,886,518

The following table shows the distribution of the aggregate documented tonnage among the leading customs districts in 1912 and 1913:

Customs Districts	1912	1913
New York	1,670,141	1,770,137
Cuyahoga, O.	864,398	838,285
Duluth	916,087	928,899
San Francisco	522,951	515,091
Puget Sound	285,091	335,383
Philadelphia	287,037	305,125
Boston	251,362	281,393
Baltimore	232,380	236,887
Buffalo Creek, N. Y.	281,519	269,947
Detroit	177,721	193,145
Perth Amboy	128,659	120,432
Chicago	123,521	135,692

As was stated in the last issue (p. 545), the total number and tonnage of barges, which are of great importance in the Atlantic-Coast trade, exceed the figures given above.

World's Merchant Marine.—The aggregate tonnage of the merchant vessels of the entire world in 1914 was reported by *Lloyd's Register* to be 49,089,552 tons, as compared with 46,970,113 in 1913, 44,600,677 in 1912 and 43,147,154 in 1911. These statistics are not exact, by reason of the fact that only vessels exceeding 100 tons are included, that they comprise the gross tonnage of steamers and the net tonnage of sailing vessels, and that the tonnage of vessels is stated in accordance with their official certificates, based on widely varying measurement rules. The number and gross tonnage of steam vessels of the world, as reported in *Lloyd's Register*, are given in the following table:

THE WORLD'S MERCHANT MARINE

Flag	1900		1913		1914	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
American:						
Sea	690	878,564	1,209	1,971,903	1,178	2,069,637
Lakes	242	576,402	593	2,285,836	579	2,260,441
Austria-Hungarian	214	387,471	419	1,010,347	433	1,052,346
British	7,903	12,149,090	10,009	19,849,167	10,123	20,523,706
Danish	369	412,273	552	711,094	576	770,430
Dutch	289	467,209	662	1,286,742	709	1,471,710
French	662	1,052,193	987	1,793,310	1,025	1,922,286
German	1,209	2,159,919	2,019	4,743,046	2,090	5,134,720
Italian	312	540,349	591	1,274,127	637	1,430,475
Japanese	484	488,187	1,037	1,500,014	1,103	1,708,386
Norwegian	806	764,683	1,597	1,870,793	1,656	1,957,353
Spanish	422	642,231	547	826,261	589	883,926
Swedish	678	418,550	1,043	943,926	1,088	1,015,364
Other countries	1,591	1,432,237	2,632	3,012,611	2,658	3,183,097
Total	15,898	22,369,358	23,897	43,079,177	24,444	45,383,877

Relative Position of American Deep-Sea Shipping.—Of the total imports and exports by sea, valued at $3,773,060,924, only $381,032,495 worth, or 10 per cent., were in 1913 carried in American vessels. This shows an increase as compared with 1912, when 9.4 per cent. were so carried, but the great contrast with the position of our shipping from 1821 to 1850 is

AMERICAN VESSELS IN THE FOREIGN TRADE

Year	Total Imports and Exports				
	In Cars and Other Land Vehicles	By Sea			Per Cent. in American Vessels
		American Vessels	Foreign Vessels	Total	
1821	.....	$113,201,462	$14,358,235	$127,559,697	88.7
1826	.....	150,331,636	12,238,163	162,569,799	92.5
1840	.....	198,424,609	40,802,856	239,227,465	82.9
1860	.....	507,247,757	255,040,793	762,288,550	66.5
1880	$20,981,393	258,346,577	1,224,265,434	1,482,612,011	17.4
1900	154,895,650	195,084,192	1,894,444,424	2,089,528,616	9.3
1905	242,265,329	290,607,946	2,103,201,462	2,393,809,408	12.1
1908	261,861,952	272,512,228	2,520,740,958	2,793,253,186	9.8
1909	253,580,297	258,657,217	2,462,693,814	2,721,351,031	9.5
1910	319,132,528	260,837,147	2,721,962,475	2,982,799,622	8.7
1911	365,903,334	280,206,464	2,930,436,506	3,210,642,970	8.7
1912	426,116,920	322,451,565	3,109,018,858	3,431,470,423	9.4
1913	505,831,459	381,032,495	3,392,028,429	3,773,060,924	10.0

apparent from the table above. It is possible that a considerable gain may result from the present situation in Europe, but permanent improvement can result only through the operation of other factors.

A comparison of American with foreign deep-sea shipping on the basis of vessel entrances and clearances reveals a slight decline in American tonnage during 1914, American vessels having furnished 26.5 per cent. of the total in 1913 and 25.8 per cent. in 1914, the latter year interrupting the steady increase from 22 per cent. in 1910. The total American tonnage entered and cleared in 1914 showed the small increase of 453,328 tons. The following table contains the official figures of entrances and clearances of American and foreign vessels since 1900:

ENTRANCES AND CLEARANCES IN FOREIGN TRADE

Year	Total Tonnage	Foreign		American	
		Tonnage	Per Cent.	Tonnage	Per Cent.
1900	56,444,146	44,099,576	78.0	12,344,570	22.0
1905	62,140,758	47,857,126	77.0	14,283,632	23.0
1910	79,941,664	62,244,602	78.0	17,697,062	22.0
1911	85,112,136	65,665,903	77.0	19,446,233	23.0
1912	92,574,983	69,614,418	75.0	22,960,565	25.0
1913	101,790,139	74,772,764	73.5	27,017,375	26.5
1914	106,571,996	79,101,293	74.2	27,470,703	25.8

Total Shipping in the Foreign Trade.—While the proportion of American vessel tonnage to the total entered and cleared declined slightly during 1914, there has been a steady increase in the total volume of shipping since 1900. In 1914 this total was 106,571,996 tons, an increase over 1913 of 4,781,857 tons, or about 4.7 per cent. Entrances increased from 50,639,173 tons in 1913 to 53,388,587 in 1914 and clearances from 51,150,966 to 53,183,409 tons. Of this increase the Atlantic Coast furnished 36.4 per cent., the Gulf 22.4 per cent., the Great Lakes 11 per cent., the Pacific ports 28.2 per cent., and the Mexican border 2 per cent. Shipping on the Pacific Coast shows a relative increase from 9.7 per cent. of the total tons entered and cleared in 1913 to 11 per cent. in 1914. The following table shows the geographical distribution of entrances and clearances for the fiscal year ending June 30, 1914:

	Entered	Cleared
Atlantic ports	26,401,314	25,491,836
Gulf ports	7,489,868	8,342,716
Lake ports, etc	13,336,288	13,440,197
Pacific ports	6,042,357	5,798,238
Mexican border ports	118,760	110,422
Total	53,388,587	53,183,409

Comparisons of entrances and clearances for 1913 and 1914 at the leading ports are impossible because of the omission of these figures from the official reports. The following table shows the divisions of tonnage entered and cleared in the foreign trade among the leading customs districts during the fiscal year 1914:

Customs District	Entered	Cleared
New York	15,767,547	15,421,394
Ohio	3,590,287	4,959,953
Massachusetts	3,363,100	2,217,521
Washington	3,171,745	3,246,475
New Orleans	2,851,265	3,102,184
Philadelphia	2,787,219	2,211,906
Michigan	2,437,627	2,316,444
Rochester	2,231,246	2,276,147
Buffalo	2,080,749	1,281,416
Florida	1,673,506	1,328,984
Duluth and Superior	1,596,171	1,099,292
Maryland	1,477,493	1,652,441
Galveston	1,382,633	1,850,676
San Francisco	1,344,977	1,511,219

Tonnage Built.—The year 1913 witnessed a greater tonnage of vessels built and documented in the United States than any year since 1908. The Commissioner of Navigation reported a total of 1,475 vessels of 346,155 gross tonnage, this being an increase of 113,486 tons, or 48.8 per cent. over the construction reported in 1912. Fewer vessels and these of greater individual tonnage were built, as is indicated by the fact that vessels of over 1,000 tons numbered 61 in 1913, as compared with 38 in the previous year, and furnished 56 per cent. of the total construction, as compared with 49.8 per cent. in 1912. This was due in large measure to the construction of five steamers designed for trade through the Panama Canal, which comprised over nine per cent. of the total tonnage. The geographical distribution of the tonnage built is shown in the following table:

	1911		1912		1913	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
Atlantic and Gulf coast	588	163,178	545	104,264	597	202,394
Northern lakes	216	94,157	224	90,898	219	90,907
Pacific coast	407	27,234	519	32,048	409	44,589
Western rivers	202	6,393	205	5,286	234	7,930
Porto Rico	9	200	10	117	14	260
Hawaii	.....	.....	2	56	2	75
Total	1,422	291,162	1,505	232,669	1,475	346,155

Of the total construction 231,672 tons, or 66.9 per cent., were steel vessels, as compared with 135,881 tons, or 58.4 per cent., of the total in 1912, an increase in tonnage of 70.4 per cent. The number of sailing vessels continued to decrease and there was a noticeable decline in the construction of schooners of large tonnage. In 1913, of the total tonnage built, steamers comprised 243,408 tons, sailing craft 28,610, barges 69,496, and canal boats 2,978 tons. The percentage of steam tonnage to the total tonnage constructed increased from 66 per cent. in 1912 to 70.3 per cent. in 1913.

Official figures are available for the first three months of the current fiscal year, and show an aggregate gross tonnage of 90,222, as compared with 80,281 for the first quarter of the previous year. It is reasonable, therefore, to look for an output during the current 12 months equal to the output of the fiscal year 1912.

The "Monroe" Disaster.—On Jan. 30, 1914, about two a. m., the Old Dominion Line steamer *Monroe*, proceeding from Norfolk to New York, and the Merchants' & Miners' Transportation Company's steamer *Nantucket*, bound for Baltimore from Boston, collided at the entrance of Chesapeake Bay, about 30 miles from Cape Charles. The *Monroe* sank in ten minutes, and 19 passengers and 22 of the crew were lost. A board of steamboat inspectors conducted an inquiry at Philadelphia on March 17, which ended in a disagreement, one inspector censuring the captain of the *Monroe*, and the other the captain of the *Nantucket*. On appeal to the

commanding inspector the captain of the latter vessel was held guilty of negligence and his license was revoked. The decision held that the *Nantucket* might have seen the *Monroe* nearly a mile away, and that, hearing the *Monroe's* whistles, the *Nantucket* might have avoided the collision.

Sinking of the "Empress of Ireland."—On May 29 the Canadian Pacific Railway Company's steamer *Empress of Ireland,* bound for Liverpool out of Quebec, was struck by the fully laden collier *Storstad* off Father Point in the Gulf of St. Lawrence and sank in 14 minutes. About 1,000 lives were lost. The insurance at Lloyds on the steamer amounted to £2,900,000. This disaster was investigated by a Canadian commission, which found it to be due to the altering of the *Storstad's* course in the fog and the failure to call the captain when the fog was seen. The contention that the steering apparatus of the *Empress of Ireland* was out of order was not sustained, but the commission stated that her captain "would have been better advised if he had given the *Storstad* a wider berth." (See also IV, *Canada.*)

Ship Subsidies and Mail Payments.—The net cost of the foreign-mail service shows an increase for the fiscal year 1913 of 15.5 per cent., being $3,691,779 as compared with $3,195,883 in 1912 and $3,315,349 in 1911. At the close of the fiscal year six contracts were in force under the Mail Contract Act of March 3, 1891, under which subsidies of $1,144,630 were paid, as compared with $983,160 in 1912 and $1,079,945 in 1911. The increase of the year 1913 was largely due to the inauguration of a fast service between San Francisco and Sydney, Australia, which because of its distance and speed increased the cost of trans-Pacific services from $206,503 in 1912 to $376,332 in 1913, an increase of 82 per cent. Thus, while in 1912 the trans-Pacific cost formed 6.4 per cent. of the total foreign-mail expense, in 1913 it increased to 10 per cent. of the total net cost. This service permits the delivery in all parts of the country of letters arriving on a vessel and the mailing of replies in time to connect with the same steamer on its return voyage to Australia.

No subsidy measures have been enacted by Congress in aid of American shipping since the passage of the Tariff Act and the Panama Canal Act, mentioned in the YEAR BOOK for 1913 (p. 548). Moreover, in June, 1914, the section of the Panama Canal Act permitting vessels engaged in the American coastwise trade to use the Canal free of tolls was repealed (see *infra*).

Repeal of Panama Tolls Exemption.—After lengthy hearings and much discussion Congress on June 15 repealed that clause of the Panama Canal Act of Aug. 24, 1912, which exempted American vessels engaged in the coastwise trade from the payment of canal tolls. The repealing act contains the following proviso, inserted in the Senate:

> That the passage of this Act shall not be construed or held as a waiver or relinquishment of any right the United States may have under the treaty with Great Britain, ratified Feb. 21, 1902, or the treaty with the Republic of Panama, ratified Feb. 26, 1904, or otherwise, to discriminate in favor of its vessels by exempting the vessels of the United States or its citizens from the payment of tolls for passage through said canal, or as in any way waiving, impairing, or affecting any right of the United States under said treaties, or otherwise, with respect to the sovereignty over or the ownership, control, and management of said canal and the regulation of the conditions or charges of traffic through the same.

By this proviso it is felt by some members of Congress that the United States does not relinquish its right to exempt American coasting vessels from the payment of tolls if such a policy should in the future seem desirable. Those, however, who believe that the United States has no such right of exemption under the Hay-Pauncefote Treaty contend that this proviso in no way affects the free-tolls issue. The deliberations of Congress emphasized the fact that remission of tolls in the case of coastwise vessels is as much a matter of domestic policy as a question involving international treaty rights (see also I, *American History;* and III, *International Relations.*)

Amendment of the Ship-Registry Act.—By an act approved on Aug. 18 Congress amended the free-ship clause of the Panama Canal Act of Aug. 24, 1912, so as to facilitate the registration of foreign-built vessels. The outbreak of the European War not only increased the need for a larger American merchant marine, but also furnished an unusual opportunity to accomplish such an increase. The original free-ship clause was therefore amended in three respects: (1.) The requirement that foreign-built vessels applying for American registry may not be more than five years old was repealed. (2.) The President was given discretionary power to suspend the requirement regarding the American citizenship of watch officers, when in his opinion the needs of foreign trade require such suspension. (3.) The President was similarly and under the same conditions authorized to suspend the law requiring the survey, inspection and measurement by officers of the United States of foreign-built vessels admitted to American registry under this Act. (See also I, *American History.*)

Government Steamship Line Bill.—A bill (H. R. 18666) was introduced on Sept. 4, as a result of the European War, for the establishment of a government steamship line, in an effort to provide needed ocean-going vessels, to promote the foreign trade of the United States, and to acquire a larger merchant marine. It provided for the organization of a $10,000,000 corporation, the United States through a shipping board to subscribe to 51 per cent. of the original stock and to the same proportion of any future increase in capital. It also provided for the use for this purpose of United States bonds available in the Treasury under the act relating to the issue of Panama Canal construction bonds, to the extent of $30,000,000; and for the use of any naval auxiliaries suitable for commerical use which are not required for use by the Navy in time of peace. The bill had the support of the President, but has not been acted upon by Congress. (See also I, *American History.*)

International Convention on Safety of Life at Sea.—As a result of the International Conference on Safety of Life at Sea, which met at London from Nov. 12, 1913, to Jan. 20, 1914, the representatives of the assembled nations, including those of the United States, signed an international convention which provides for (1) the destruction of derelicts, an ice patrol, and the reporting of dangerous ice; (2) the revision of the international regulations for preventing collisions at sea; (3) the fitting of vessels with approved bulkheads, means for closing side openings, watertight decks, approved double bottoms, etc., and for the periodical testing and inspection of watertight doors, etc.; (4) the installation and operation of wireless telegraph outfits; (5) the equipment of vessels with approved types of life boats and rafts, sufficient in number to carry all persons on board and manned and embarked according to prescribed rules; (6) the adoption of fire precautions; and (7) the issue of safety certificates by authorized government officials. The convention will become effective July 1, 1915, in such countries as ratify it.

The Senate ratified the convention on Dec. 16 with a proviso, inserted at the behest of the interests responsible for the pending Seamen's bill (see I, *American History*), which declares:

> That the United States reserves the right to abrogate treaties, conventions, and agreements indicated in Article 68, in accordance with the terms of such treaties, conventions, and agreements, and to impose upon all vessels in the waters of the United States such higher standards of safety and such provisions for the health, protection, and comfort of passengers, seamen, and immigrants as the United States shall enact for vessels of the United States.

This amendment opens the way for legislation repealing existing laws for the arrest and return of seamen deserting in American ports and for other legislation of a radical nature. If, as appears probable, the other signatory powers will decline to agree to this modification of the convention, the action of the Senate nullifies it so far as the United States is concerned.

Agreements and Combinations Among Water Carriers.—On June 18 a bill (H. R. 17328) was introduced in the House of Representatives by Mr. Alexander (Mo.) to regulate car-

riers by water engaged in the foreign and interstate commerce of the United States. Subject also to the Act are concerns carrying on the business of forwarding, ferrying, canal operation, towing or furnishing transfer, lighterage, dock, warehouse or other terminal facilities in connection with foreign or interstate commerce. The bill briefly summarized provides as follows:

(1.) No foreign or interstate carrier shall (*a*) pay or agree to pay deferred rebates to shippers; (*b*) use fighting ships for the purpose of excluding, preventing or reducing competition; (*c*) retaliate against any shipper by the refusal of available space accommodations or by other unfair methods. The penalty for violation of the above is a fine of from $5,000 to $25,000 for each offense and any vessel operated in violation of the law may be prohibited from entering or clearing at any port of the United States.

(2.) Carriers in foreign and interstate commerce and other persons subject to the Act shall file for approval with the Interstate Commerce Commission a copy of any written, or a memorandum of any oral, arrangement to which it may be a party, regulating rates, special rates, privileges, competition, pooling or apportioning earnings or traffic, allotting ports, regulating sailings, regulating the volume or character of freight or passenger traffic to be carried, or providing for an exclusive, preferential or coöperative working arrangement. All modifications and cancellations thereof are to be filed for approval also.

(3.) The Interstate Commerce Commission is empowered to cancel or modify any such agreement or understanding, or part thereof, that it may find unfair as between carriers or exporters and their foreign competitors, or which operates to the detriment of the commerce of the United States.

(4.) Such agreements as are approved shall be exempted from the operation of the Sherman Act.

(5.) The penalty for violation of the above provisions (sections 2 and 3 of this summary) is a fine of $1,000 for each day during which such offense continues.

(6.) All traffic or rate associations or conferences affecting interstate commerce shall be placed under the jurisdiction of the Interstate Commerce Commission as regards all matters affecting the interests of shippers and carriers and with respect to interstate transportation both by rail and water combined and entirely by water. The Commission may prescribe reasonable conditions of admission to such associations, and it shall be unlawful to deny membership because the consent of all or any number of the existing members cannot be obtained.

(7.) It shall be unlawful for any common carrier by water or other person subject to the Act (*a*) to issue free passes or carry property free, with practically the same exceptions as are provided in the Interstate Commerce Act, the penalty for violation of this section being a fine of $100 to $2,000 for each offense; (*b*) to discriminate between persons by means of special rates, rebates or drawbacks; (*c*) to discriminate between persons, localities or kinds of traffic; (*d*) to falsely bill, classify or weigh; (*e*) to influence any marine insurance company or underwriter to prevent competing carriers by water from securing as favorable a rate of insurance on cargo carried, having due regard to the class of vessel, as is granted to such carrier or person. Persons violating any of the provisions listed under section 7 of this summary shall be subject to a fine not to exceed $5,000 for each offense, unless some other penalty is specifically provided therein. For discrimination in rates, however, persons shall also be liable to imprisonment for not exceeding two years, or to both such fine and imprisonment.

(8.) As regards common carriers engaged in foreign commerce the Interstate Commerce Commission is empowered to prescribe just and reasonable rates which are to be thereafter observed as the maximum charges. It may also enforce just and reasonable regulations for the handling of property by any carrier.

(9.) The Commission has power to enforce among carriers by water engaged in interstate commerce reasonable rates, and regulations affecting classifications, receipts, bills of lading, baggage, methods of presenting property for transportation and all other matters connected with the handling and transportation of property.

(10.) Every common carrier by water engaged in interstate commerce shall file with the Interstate Commerce Commission and keep open to public inspection, as prescribed by the Commission, all rates over its own route and all rates over through routes, and must give ten days' notice of a change in rates. The Interstate Commerce Commission is empowered to prescribe maximum rates and differentials between rail carriers and water carriers when the two services are in competition with each other.

(11). When an interstate water carrier reduces its rates with the intent of driving out competition it shall not be permitted to increase such rates unless such increase is justified by a change in conditions under which it operates other than the elimination of said competition.

(12.) All persons subject to the Act are prohibited from disclosing information received from shippers to competitors.

(13.) As regards all persons subject to the Act, the Interstate Commerce Commission may investigate unfair treatment of shippers regarding space accommodations, discriminating contracts with shippers, or unfair treatment in the handling of freight or settlement of claims. It may adopt rules necessary to prevent such practices and protect the complainant against retaliation.

(14.) It shall be unlawful for any railroad company to discriminate against a rail-and-water route, as compared with the all-rail route between the same points by charging more for the same transportation on water-borne commodities than is charged for transporting the same commodities when received from rail carriers.

(15.) It shall be unlawful for any common carrier to acquire any interest, directly or indirectly, in any canal or canal facility used in interstate commerce, unless approved by the Interstate Commerce Commission.

(16.) The Interstate Commerce Commission may require any carrier to file periodical or special reports of business about which the Commission is required by this Act to keep itself informed. Failure to file such report involves a fine of $100 for each day in default. Falsification and untruthful reports are punishable by a fine of $1,000 to $5,000 or imprisonment not to exceed three years, or both.

(17.) The Act to Regulate Commerce of 1887 and all amendments thereto shall apply to water carriers in interstate commerce as far as they may be applicable. The Interstate Commerce Commission may require any person owning an interstate water carrier to account separately, in a manner prescribed, for the income, expenditures and other financial and property characteristics.

(18.) The penalties for violation of the provisions of sections 8, 9, 13, 14 and 15 of this summary shall be $5,000 fine for each day such violation continues and for violations of section 12 of this summary $1,000 for each offense. Violations not specifically provided for are punishable by a fine of $5,000 for each offense.

(19.) The Interstate Commerce Commission shall be enlarged so as to consist of 11 members, such enlargement to be accomplished through appointment by the President, by and with the advice and consent of the Senate, of four commissioners additional to the seven now composing the Commission.

The introduction of this bill was preceded by a two-year investigation of water carriers in the foreign and domestic trade (the so-called "shipping-trust" inquiry) and a report thereon by the Committee on the Merchant Marine and Fisheries. The Committee in its report stated that agreements and combinations are universal in the foreign trade and have been found to have features advantageous to shippers. To prohibit such agreements would be to sacrifice their advantages and to promote the elimination of small competitors either by competition or consolidation. It also stated that, while agreements are less universal in the domestic trade, competition is there restrained by other methods. The Committee stated that regulation is the advisable policy and its recommendations embodied practically all the features contained in the proposed bill.

The Panama Canal.—The Panama Canal was opened for navigation on Aug. 15, and on the same date the first vessel to pass through, the government steamship *Ancon*, made the trip in nine hours. The following day 11 vessels, most of which had been waiting at the terminals, passed through and in the first month the canal was used by 40 vessels. In the first three months of operation, ending Nov. 15, 212 vessels passed through the canal. The eastbound traffic comprised 102 vessels with 621,080 tons of cargo; the westbound, 110 vessels with 457,991 tons of cargo. The total of 1,079,521 tons of freight passed by the canal in the first three months was about 88 per cent. of the traffic of the Panama Railroad during the fiscal years 1913 and 1914 combined. On the first three months' traffic the toll charge amounted to about 75 cents per ton of freight. The American-Hawaiian Line proposes to have a steamer passing through the canal every 36 hours. As a result of the Panama Canal Act, which

prohibited railroad owned vessels from navigating the canal, the Pacific Mail has discontinued its coast-to-coast service. (See also I, *American History;* and X, *The Panama Canal.*)

EXTERNAL COMMERCE OF THE UNITED STATES

Total Foreign Trade.—Official figures for the fiscal year ending June 30, 1914, value the total foreign trade in merchandise of the United States at $4,258,504,805, the exports being valued at $2,364,579,148 or 55.5 per cent., and the imports at $1,893,925,657 or 44.5 per cent. of the total. The merchandise commerce of 1914 therefore was less than that of 1913 by $20,387,578, or 4.78 per cent., in spite of the fact that a considerable quantity of imported wares which was held in warehouses until the enactment of the new tariff law was released and figured as imports in the fiscal year 1914. Thus the value of dutiable merchandise remaining in warehouses declined from $104,398,595 on June 30, 1913, to $79,262,842 on June 30, 1914. The trade with North America and South America was principally responsible for the loss in total commerce, the former being responsible for $23,312,356 or 48.1 per cent. of the loss, and the latter for $16,665,638 or 34.4 per cent.; and the African trade accounted for the remaining 17.5 per cent. of the decline. The decrease in the value of the goods exported to Canada was so great that in spite of an increase in imports, the total trade with that country underwent a net loss of $30,613,947.

Exports to Foreign Countries.—The total value of the exports of merchandise in the fiscal year 1914 was smaller than in 1913 by $101,305,001, the principal cause being a decline of $88,768,051 in the value of goods exported to North America. The exports of merchandise subdivided by continents are shown in the following table:

EXPORTS OF MERCHANDISE, BY CONTINENTS

Continent	1912	1913	1914
Europe	$1,341,732,789	$1,479,074,761	$1,486,498,729
North America	516,837,597	617,413,013	528,644,962
South America	132,310,451	146,147,993	124,539,909
Asia	117,461,635	115,056,620	113,425,616
Oceania	71,936,513	79,102,845	83,568,417
Africa	24,043,424	29,088,917	27,901,515
Total	$2,204,322,409	$2,465,884,149	$2,364,579,148

American exports showed an increase as regards only two of the principal markets, Germany and France. The shipments to Great Britain, the Netherlands, Italy, Mexico, Belgium, Cuba, Argentina, Japan, and especially to Canada declined, the latter country accounting for $70,732,476, or 69.8 per cent., of the total loss in the value of exports. Merchandise exports to various important markets are shown in the table below:

EXPORTS OF MERCHANDISE, BY PRINCIPAL COUNTRIES

Market	1912	1913	1914
Germany	$306,959,021	$331,684,212	$344,794,276
Great Britain	564,372,186	597,149,059	594,271,863
France	135,388,851	146,100,201	159,818,924
Canada	329,257,194	415,449,457	344,716,981
Netherlands	103,702,859	125,909,862	112,215,673
Italy	65,261,268	76,285,278	74,235,012
Mexico	52,847,129	54,383,424	38,748,793
Belgium	51,387,618	66,845,462	61,219,894
Cuba	62,203,051	70,581,154	68,884,428
Argentina	53,158,179	52,894,834	45,179,089
Japan	53,478,046	57,741,815	51,205,520

Exports of manufactures, exclusive of foodstuffs, failed to increase in 1914, being valued at $1,099,632,138 and forming 47.2 per cent. of the total, as compared with 48.8 per cent. in 1913, 47 per cent. in 1912, and 45 per cent. in 1911. Finished manufactures alone constituted 31 per cent. of the total trade, as compared with 32 per cent. in 1913. Crude materials for use in manufacturing, on the other hand, showed an unusually large increase and furnished 34 per cent. of the total value of exports, while crude foodstuffs and food animals supplied 5.9 per cent.; manufactured foodstuffs, 12.6 per cent.; and miscellaneous merchandise, 0.3 per cent.

IMPORTS AND EXPORTS OF MERCHANDISE, BY CLASSES

Year Ended June 30	Foodstuffs in Crude Condition, and Food Animals	Foodstuffs Partly or Wholly Manufactured	Crude Materials for Use in Manufacturing	Manufactures for Further Use in Manufacturing	Manufactures Ready for Consumption	Miscellaneous	Total
Imports:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
1900	97,916,293	133,027,374	276,241,152	134,222,045	203,126,341	5,407,979	849,941,184
1901	110,385,208	125,540,654	248,006,751	127,576,924	205,505,580	6,157,048	823,172,165
1902	120,280,302	95,350,256	303,001,868	147,656,292	231,420,820	5,611,410	903,320,948
1903	119,202,674	116,620,623	330,491,084	195,750,847	257,740,815	5,896,825	1,025,719,237
1904	132,223,895	118,222,862	320,794,431	160,233,890	252,812,835	6,754,620	991,087,371
1905	146,130,903	145,355,839	389,160,658	177,827,960	252,349,842	6,665,061	1,117,513,071
1906	134,322,347	140,358,109	414,687,999	220,298,751	307,674,728	9,100,980	1,226,562,446
1907	149,747,693	158,656,263	477,027,174	274,096,464	364,192,884	10,700,947	1,434,421,425
1908	145,577,427	147,008,870	363,823,723	196,320,135	331,204,635	10,406,902	1,194,341,792
1909	164,110,674	165,700,920	451,359,259	222,101,622	299,106,235	9,541,514	1,311,920,924
1910	144,776,636	181,566,572	566,270,770	285,138,373	367,723,367	11,471,712	1,556,947,430
1911	181,194,863	172,006,501	511,362,140	287,785,652	361,422,180	13,454,769	1,527,226,105
1912	230,358,230	196,100,608	555,986,041	293,739,134	360,018,963	17,061,958	1,653,264,934
1913	211,746,500	194,243,220	635,210,201	349,401,928	408,178,704	14,227,681	1,813,008,234
1914	247,835,505	227,235,184	634,054,888	319,714,887	448,312,948	16,772,245	1,893,925,657
Exports[1]							
1900	227,347,193	318,126,502	325,589,000	152,890,591	331,955,684	14,854,601	1,370,763,571
1901	246,394,140	336,605,378	397,767,463	148,013,625	317,764,367	13,917,833	1,460,462,806
1902	184,786,389	328,831,350	373,595,243	131,918,311	321,946,540	14,404,028	1,355,181,861
1903	185,308,064	323,244,697	408,442,137	140,666,864	327,468,629	7,100,911	1,392,231,302
1904	135,747,224	308,836,077	461,424,464	174,876,659	348,734,801	5,559,792	1,435,179,017
1905	118,185,098	283,065,098	472,114,493	209,926,174	402,049,798	6,403,980	1,491,744,641
1906	177,216,467	347,385,463	500,536,700	226,210,513	459,812,655	6,791,584	1,717,953,382
1907	167,348,227	345,706,609	593,145,135	259,442,028	480,681,423	7,394,612	1,853,718,034
1908	189,051,824	331,961,663	556,681,462	261,105,883	489,469,958	6,515,567	1,834,786,357
1909	135,693,409	302,555,341	520,907,436	231,186,607	440,229,407	7,783,393	1,638,355,593
1910	109,828,320	259,259,654	565,934,957	267,765,916	499,215,329	8,079,822	1,710,083,998
1911	103,401,553	282,016,883	713,018,206	309,151,989	598,367,852	7,592,542	2,013,549,025
1912	99,899,270	318,838,493	723,008,839	348,149,524	672,268,163	8,155,539	2,170,319,828
1913	181,907,266	321,204,373	731,758,513	408,806,949	776,297,360	8,531,897	2,428,506,358
1914	137,456,039	292,840,627	792,744,697	374,687,722	724,944,416	7,010,524	2,329,684,025

[1] Exports of domestic merchandise only.

The most important manufactured articles, iron and steel, showed a great decline, and their value, $251,480,677, was even less than in 1912. Machinery alone showed a decrease in value of $14,895,565. Raw cotton, which in 1913 declined in value, was during the fiscal year 1914 practically the only one of the important exports, with one exception, which increased in value. Cotton manufactures also failed to show any improvement, and leather and manufactures thereof, agricultural implements, wheat, and breadstuffs in general, and meat and dairy products underwent a decline. Refined oils and flour alone showed approximately their usual increases. The steady decrease in the export value of foodstuffs in general and meat and dairy products in particular continued unabated in 1914, a noticeable feature of the meat trade being the falling off in fresh beef exports, which in 1900 were valued at 29⅔ million dollars but which in 1914 declined to $788,793, or 2.6 per cent. of their former value.

In addition to the merchandise exports given in the table, gold and

silver were exported to foreign countries to the values of $112,038,529 and $54,965,023, respectively, during the fiscal year 1914. Large gold shipments were a feature of the year (see XIII, *Economic Conditions;* and XIV, *Banking and Currency*).

Exports by Groups of Ports.—The available official statistics of 1914 do not report the exports of individual ports. The following table, however, presents the value of exports from the various groups of customs districts for the fiscal year ending June 30, 1914:

	1913	1914
Atlantic coast	$1,348,811,300	$1,304,108,797
Gulf coast	543,076,878	566,387,662
Mexican border	24,902,645	16,630,369
Pacific coast	146,856,469	136,243,148
Northern border	401,997,518	341,183,200
Interior ports	239,339	25,972
Total	$2,465,884,149	$2,364,579,148

The ports of the Gulf, as is seen from the table, gained somewhat, while those of the Atlantic, Pacific, and Great Lake districts witnessed declines.

Exports to American Dependencies.—The value of the exports to dependencies showed a decline from $108,302,520 in 1913 to $106,711,680 in 1914. There was a slight gain in the trade with Alaska and the Philippines, but the shipments to Hawaii and Porto Rico declined about 16 per cent. and 1.5 per cent. respectively. It should be remembered, however, that exports to dependencies were larger in 1913 than in any other year of our trade, and these territories combined still exceed in importance the individual markets of Italy, Mexico, Belgium, Cuba, Argentina, and Japan, which are numbered among the principal selling fields in foreign trade.

The shipments of domestic merchandise to the non-contiguous territories of the United States during the fiscal year 1914 were as follows:

	1913	1914
Alaska	$20,179,547	$21,929,460
Hawaii	30,411,899	25,571,169
Porto Rico	32,223,191	31,754,695
Philippines	25,360,646	27,268,064
Guam	1,755	213
Tutuila	125,482	188,079
Total	$108,302,520	$106,711,680

Imports from Foreign Countries.—From 1911 to the present time a steady increase in imports has taken place, these amounting for the fiscal year 1914 to $1,893,925,657, as compared with $1,813,008,234 in 1913, an increase of 4.28 per cent. over the latter year. The following table shows the distribution by continents:

IMPORTS OF MERCHANDISE, BY CONTINENTS

Continent	1912	1913	1914
Europe	$819,585,326	$892,866,384	$895,602,868
North America	334,072,039	361,943,659	427,399,354
South America	215,089,316	217,734,629	222,677,075
Asia	225,468,250	276,494,777	286,952,486
Oceania	36,464,115	37,543,441	42,144,398
Africa	22,585,888	26,425,344	19,149,476
Total	$1,653,264,934	$1,813,008,234	$1,893,925,657

A gain is evident in each of the continents except Africa, which, however, supplies only one per cent. of the total imports. Imports from Europe comprised only 47.2 per cent. of the total, as compared with 49.2 per cent. in 1913 and 49.5 per cent. in 1912. Asiatic, South American and African imports retained the same relative importance as in 1913, while those of North America increased from 20.2 per cent. of the total in 1913 to 22.6 per cent. in 1914. As was the case with the decline in exports the increase in imports may be largely ascribed to Canada. Of the total increase of North American imports Canada furnished $40,118,529, or 61 per cent. The value of the imports of the United States from the principal countries is shown in the following table:

IMPORTS OF MERCHANDISE, BY PRINCIPAL COUNTRIES

Country	1912	1913	1914
Great Britain	$272,940,700	$295,564,940	$293,661,304
Germany	171,380,380	188,963,071	189,919,136
France	124,548,458	136,877,990	141,446,252
Brazil	123,881,644	120,155,855	101,329,073
Cuba	120,154,326	126,088,173	131,303,794
Canada	108,813,368	120,571,180	160,689,709
Japan	80,607,469	91,633,240	107,355,897
Italy	48,028,529	54,107,364	56,407,671
Mexico	65,915,313	77,543,842	92,690,566
British India	50,948,901	67,949,259	73,630,880

All the countries named showed increases except Great Britain and Brazil. Especially noteworthy were the increases of Mexico, British India, Japan and Cuba. Among the countries of lesser importance with which the import trade aggregates $10,000,000 or more, Belgium, The Netherlands, European Russia, the Straits Settlements and other British East Indies and South Africa showed declines, while the trade with Spain, Sweden, Switzerland, Argentina, Colombia, Peru, China, Asiatic Turkey and Australia increased during the fiscal year 1914.

Of the total imports, crude foodstuffs and food animals furnished 13.08 per cent., as compared with 11.68 per cent. in 1913, and manufactured foodstuffs formed 12 per cent. of the total value as compared with 10.72 per cent. in 1913. Manufactures ready for consumption and miscellaneous articles increased, respectively, from 22.51 per cent. and 0.78 per cent. in 1913 to 23.67 per cent. and 0.89 per cent. in 1914. Crude materials for manufacture, however, declined relatively from 35.04 per cent. to 33.48 per cent. of the total; and more than half of the previous year's increase in manufactures for further use in manufacturing was lost in 1914 when this group of commodities comprised 16.88 per cent. of the total imports.

Increases occurred in the imports of hides and skins, wool, raw silk, woolen, cotton and silk manufactures, fibers and their manufactures, leather, vegetable oils, paper, wood, and fruits and nuts. Iron and steel goods, chemicals and precious stones, which showed an increase in 1913, declined in value during 1914, as did also rubber and sugar. Although there was a large increase in the amount of coffee imported, the decline in price reduced the value of coffee imports by more than eight million dollars.

A noticeable feature of the import trade was the decline in the value of the imports of the Atlantic and interior ports and the great increase of the Lake ports. Of the total increase in imports the latter furnished $51,660,865, or 63.8 per cent. The following table shows the distribution of imports among the leading groups of ports:

	1913	1914
Atlantic ports	$1,375,849,835	$1,374,620,578
Pacific ports	128,895,064	138,151,367
Northern border and lake ports	153,612,547	205,273,412
Gulf ports	103,612,409	120,372,034
Interior ports	23,978,819	22,705,357
Mexican border	27,059,560	32,802,909
Total	$1,813,008,234	$1,893,925,657

In addition to merchandise, gold valued at $66,538,659 and silver valued at $30,326,604 were imported into the United States during the fiscal year 1914.

Imports from American Dependencies.—The importation of domestic merchandise from our non-contiguous possessions is shown in the following table:

	1913	1914
Alaska	$24,014,556	$21,480,066
Hawaii	42,652,462	40,628,200
Porto Rico	40,529,665	34,423,180
Philippines	21,010,248	18,162,312
Guam	.....	.....
Tutuila	132,645	[1]
Total	$128,339,576	$114,693,758

[1] Figures not yet available.

The decreased value of the imports from these territories during 1913 continued during the fiscal year 1914, when they aggregated $114,693,758 as compared with $128,339,576 in the preceding year. The decline was evenly distributed among the various territories. The total domestic imports received from non-contiguous dependencies, however, continue to exceed the return shipments by $7,982,078. Foreign merchandise valued at $387,722 and gold and silver valued at $17,151,132 were also imported from the non-contiguous territories.

The Balance of Trade.—The following figures, which include the receipts and shipments of both merchandise and specie, indicate the movement of the balance of trade during the years 1900 to 1914 (see also XIII, *Economic Conditions*):

Fiscal Year	Merchandise			Merchandise and Specie		
	Imports	Exports	Excess of Exports	Imports	Exports	Excess of Exports
1900...	$849,941,184	$1,394,483,082	$544,541,898	$929,770,670	$1,499,462,116	$569,691,446
1901...	823,172,165	1,487,764,991	664,592,826	925,609,873	1,605,235,348	679,625,475
1905...	1,117,513,071	1,518,561,666	401,048,595	1,198,646,897	1,660,004,502	461,357,605
1906...	1,226,562,446	1,743,864,500	517,302,054	1,367,226,716	1,848,307,154	481,080,438
1907...	1,434,421,425	1,880,851,078	446,429,653	1,591,878,298	1,988,989,327	397,111,029
1908...	1,194,341,792	1,860,773,346	666,431,554	1,387,337,210	1,991,127,472	603,790,262
1909...	1,311,920,224	1,663,011,104	351,090,880	1,399,879,023	1,810,225,714	410,346,691
1910...	1,556,947,430	1,744,984,720	188,037,290	1,645,504,529	1,918,834,796	273,330,267
1911...	1,527,226,105	2,049,320,199	522,094,094	1,646,770,367	2,136,579,810	489,809,443
1912...	1,653,264,934	2,204,322,409	551,057,475	1,749,251,653	2,326,541,422	576,289,769
1913...	1,813,008,234	2,465,884,149	652,875,915	1,923,470,775	2,615,261,082	691,790,307
1914...	1,893,925,657	2,364,579,148	470,653,491	1,990,790,920	2,531,582,700	540,791,780

In 1914 the total exports exceeded the total imports by $540,791,780, as compared with an excess of $691,790,307 during the year 1913.

INLAND WATERWAYS AND COASTWISE COMMERCE

Domestic Trade of the Great Lakes.—The increase of trade on the Great Lakes in 1912 continued during 1913, as is shown by the following table of the traffic passing through the American and Canadian Sault Ste. Marie canals:

	1912	1913
Coal, short tons.....	14,931,594	17,487,406
Flour, bbl.....	8,652,153	9,295,875
Wheat, bu.....	174,086,456	179,979,009
Other grain, bu.....	69,024,546	83,181,961
Manufactured and pig iron, short tons.....	654,892	601,284
Salt, bbl.....	660,991	630,583
Copper, short tons....	116,954	119,797
Iron ore, short tons...	46,303,423	48,646,185
Lumber, board-feet...	667,542,000	655,156,000
Building stone, short tons.....	2,282	273
General merchandise..	1,664,783	1,794,144
Total, short tons...	72,472,676	78,017,269

The total tonnage passing through the Sault Ste. Marie canals during the calendar year 1913, as reported by the Chief of Engineers, U. S. Army, was 78,017,269 short tons, as compared with 72,472,676 tons in 1912 and 53,477,216 tons in 1911. The increase was due to the larger quantity of wheat and other grain, coal, flour and iron ore. Shipments of manufactured and pig iron, salt, lumber and building stone decreased. Practically the same is true of the commerce of the St. Mary's Falls canal (American), except that lumber shipments through the canal increased. Its total traffic during the fiscal year 1913 comprised 36,425,015 short tons as compared with 26,237,785 short tons in the fiscal year 1912.

Accurate statistics of the commerce passing through the Detroit River are available for eleven consecutive years, and they show rapid increase since 1904. The following table shows the number of passages, net registered tonnage, and estimated freight tonnage and value, from 1902 to 1912, inclusive:

	Number of Passages	Net Registered Tons	Freight Tons Estimated	Estimated Value
1902	33,000	39,328,689	44,260,506	$440,834,640
1903	33,113	37,453,796	46,817,245	471,917,830
1904	29,472	33,049,984	42,792,326	453,598,656
1905	35,599	45,912,622	55,508,360	522,888,751
1906	35,128	50,673,897	63,808,571	662,971,053
1907	34,149	53,959,769	71,226,895	697,311,302
1908	27,883	40,628,850	54,086,750	614,425,480
1909	32,296	54,668,846	67,789,369	732,803,079
1910	33,638	58,821,282	73,526,602	771,294,055
1911	30,612	52,142,703	66,951,231	745,167,201
1912	33,675	61,606,271	78,671,208	859,089,591

Vessels to the number of 1,250 used this passage during 1912, of which 910 were steamers, 272 sailing vessels and 68 gasoline yachts. The average tonnage of all vessels using the passage was 1,725.

New York State Canals.—The steady decline since 1900 in the tonnage and value of products carried on the New York state canals continued during 1913, when the totals were respectively 2,602,035 tons and $36,865,451. All canals, except the Cayuga and Seneca, were equally affected. The report of the Committee on the Merchant Marine and Fisheries on the "Investigation of Shipping Combinations" states that "this declining importance of the canal is largely due to the efforts of the railroads to divert the traffic to their own lines" by (1) securing control of the canal boat lines, (2) refusing to exchange freight with independent forwarders, and (3) acquiring control of terminal facilities at Buffalo and New York. Of the total shipments in 1913, through freight comprised only 564,667 tons, or 21.7 per cent.

The Barge canal between Lockport and Rochester was completed, except for a single section; throughout the Newark district the new canal is in operation; and navigation has been established on one of the river sections in the Mohawk Valley.

NEW YORK STATE CANALS

	Tonnage on New York State Canals					Total Quantity	Total Value
	Erie	Champlain	Oswego	Cayuga and Seneca	All Others		
1900	2,145,876	972,867	31,742	130,126	65,330	3,345,941	$84,123,772
1906	2,385,491	740,983	172,228	164,874	77,331	3,540,907	66,501,417
1907	2,415,548	678,506	143,277	112,570	58,013	3,407,914	63,903,970
1908	2,177,443	614,762	92,831	81,029	85,812	3,051,877	54,511,509
1909	2,031,307	732,125	121,717	84,957	146,430	3,116,536	59,081,572
1910	2,023,185	684,027	110,079	80,125	175,996	3,073,412	59,042,178
1911	2,031,735	770,668	113,891	98,854	81,920	3,097,068	49,577,629
1912	1,795,069	590,723	83,580	80,753	55,991	2,606,116	38,444,617
1913	1,788,453	554,892	61,554	149,874	47,262	2,602,035	36,865,451

Coastwise Trade.—The detailed data presented in former issues of the YEAR BOOK are not available for 1914. The state of the coastwise trade on the North Atlantic seaboard during 1913 as compared with the preceding year, however, is illustrated by the coastwise movements at a few of the larger ports. The Philadelphia Maritime Exchange reports 4,327 arrivals and 4,309 departures of coastwise vessels at Philadelphia during 1913, while the figures for 1912 were 4,004 and 4,032 respectively. The New York Produce Exchange reports total domestic arrivals at New York during 1913 of 4,888, as compared with 5,078 in 1912. Of the 1913 total, 2,034 comprised vessels arriving at New York from eastern ports and 2,854 from southern ports.

The Cape Cod sea-level canal was opened to traffic of vessels not exceeding 15 ft. draft on July 30, the

ceremonial opening having taken place on the preceding day. This canal will eventually have a depth of 25 ft. at low water and enable vessels to escape many navigation dangers and many of the fogs which are encountered on the open sea route around Cape Cod, and which, it is estimated, have been responsible for the loss of at least 2,000 vessels and 800 lives in the last 60 years. (See also X, *Waterways and Harbors.*)

The Bureau of Foreign and Domestic Commerce reports the value of the domestic intercoastal trade *via* the Isthmus of Panama and Tehuantepec in the fiscal years 1913 and 1914 as follows:

	Via Isthmus of Panama		*Via* Isthmus of Tehuantepec		Total	
	1913	1914	1913	1914	1913	1914
From Atlantic-Gulf Coast to Pacific Coast	$11,322,693	$12,309,458	$62,423,303	$42,314,263	$73,745,996	$54,623,721
From Pacific Coast to Atlantic Coast	6,820,224	8,897,311	31,801,316	25,125,695	38,621,540	34,023,006
Total	$18,142,917	$21,206,769	$94,224,619	$67,439,958	$112,367,536	$88,646,727

The total shipments *via* these routes both eastward and westward show a considerable decline ($23,720,809) in the value of the products carried. The loss, however, was confined to the traffic *via* the Isthmus of Tehuantepec, that moving *via* the Isthmus of Panama having increased.

The principal articles westbound were iron and steel and manufactures thereof, cotton and woolen goods, paper and manufactures thereof, chemicals, vegetables, copper, brass and manufactures thereof, cordage and twine, glass and glassware, manufactured rubber, oilcloths, mineral oil, paints and colors, soap, distilled spirits and tobacco. In order of importance the products carried by the eastbound traffic were sugar, wines, wool, prepared fruits, canned salmon and prunes.

EXPRESS COMPANIES

As reported in the *Preliminary Abstract* of the Interstate Commerce Commission, the 12 leading express companies (enumerated in the table below) operated over an aggregate mileage of 301,064 miles in 1913, as compared with 283,303 in 1912,[1] 270,438 in 1911, and 258,129 in 1910, thus making a greater gain during 1913 than in any of these previous years. The aggregate gross receipts from operation of these 12 companies were $168,880,923 in 1913, as compared with $160,121,932 in 1912 and $152,612,880 in 1911, an increase during the year 1913 of 5.4 per cent. Payments for the express privilege increased from $78,576,274 in 1912 to $83,872,497 in 1913, an increase of 6.7 per cent. Operating revenues were $85,008,426 in 1913, $81,545,658 in 1912 and $78,676,862 in 1911, an increase of 4.2 per cent. in 1913; operating expenses aggregated $79,215,708 in 1913, $73,255,682 in 1912, and $67,089,233 in 1911, an increase in 1913 of 7.7 per cent.; other income was $5,533,829 in 1913, $5,369,822 in 1912, $6,315,842 in 1911, an increase in 1913 of 3.0 per cent.; gross corporate income was $9,887,356 in 1913, $12,182,367 in 1912, and $16,600,616 in 1911, a decrease of 18.8 per cent.; and net corporate income aggregated $8,610,890 in 1913, $10,944,371 in 1912, and $15,366,609 in 1911, a decrease of 21.3 per cent. The decline of $2,497,258 in gross income is accounted for by the fact that while gross receipts increased by $8,758,991, the costs of the express privilege and operation increased by $5,296,223 and $5,960,026 respectively. With the exception of the Southern and Wells Fargo companies dividends on stocks owned decreased, and the interest due on bonds

[1] Data for years preceding 1913 are as corrected since the 1913 issue of the YEAR BOOK.

owned, except those of the Adams, Southern, and Wells Fargo companies, also decreased.

The following table shows the principal statistical items for each of the 12 companies in the fiscal year 1913:

Company	Gross Receipts from Operation	Express Privilege	Operating Revenues	Operating Expenses	Net Corporate Income
Adams	$35,182,128	$18,444,345	$16,737,783	$16,565,816	$1,005,481
American	47,849,009	23,277,072	24,571,937	23,639,867	1,835,808
Canadian	3,433,602	1,518,292	1,915,310	1,574,353	192,961
Canadian Northern	957,276	372,603	584,673	365,834	211,879
Globe	820,912	407,458	413,454	379,268	184,864
Great Northern	3,351,531	2,009,028	1,342,503	1,037,876	244,126
National[1]	.....	.....	.....	.....	.....
Northern	3,219,726	1,732,155	1,487,571	1,128,468	339,571
Southern	16,182,357	8,045,074	8,137,283	6,801,421	1,285,922
United States	21,620,710	10,446,376	11,174,334	11,145,178	222,968
Wells Fargo	34,934,814	16,908,591	18,026,223	16,010,198	3,045,426
Western	1,328,858	711,503	617,355	567,429	41,884
Total	$168,880,923	$83,872,497	$85,008,426	$79,215,708	$8,610,890

[1] Property leased to American Express Company.

The poor returns of 1913 were followed on March 13, 1914, by the authorization of the board of directors to dissolve the United States Express Co. The causes were stated to be (1) the competition of the parcel post, (2) the rates enforced by the Interstate Commerce Commission, (3) the burdens of doing business added by the Interstate Commerce Commission and state commissions, and (4) the increased cost of transportation, labor and supplies. To these causes should be added the increased amounts paid to the railroads for express privileges. The stockholders agreeing to the dissolution, the company began to abrogate its contracts for express service on railroads in April and to dispose of its assets in July.

During the year the effect of the parcel post has been felt, for while gross receipts increased, the increase in costs was greater. The enforcement of the reduced rates demanded by the Interstate Commerce Commission having been postponed to February, 1914, they have had no effect upon the business of 1913, but unofficial figures show that the gross income of the Adams Express Co. for February, March, April, May and June of 1914 was only $12,757,458, as compared with $13,701,898 for the same months of 1913, a decrease of $944,440, or 6.8 per cent. The companies estimated a loss in revenue of 30 per cent. due to the reduced rates. In February the dividend of the Adams Express Co. was reduced from $12 to $6 per share.

THE POST OFFICE

Cost of Postal Service.—The total revenues, expenditures, and deficit or surplus of the Post Office annually since 1900, as reported by the Post Office Department, are shown in the following table:

Year	Postal Revenues	Postal Expenditures	Deficit
1900	$102,354,579	$107,740,267	$5,385,688
1905	152,826,585	167,399,169	14,572,584
1906	167,932,782	178,449,778	10,576,996
1907	183,585,005	190,238,288	6,653,283
1908	191,478,663	208,351,886	16,873,223
1909	203,562,383	221,004,103	17,441,720
1910	224,128,657	229,977,225	5,848,567
1911	237,879,823	237,648,926	230,897[1]
1912	246,744,015	248,525,450	1,781,435
1913	266,619,525	262,067,541	4,551,984[1]

[1] Excess revenue.

This shows an increase in revenue in 1913 exceeding the increase in expenditures and causing a surplus of $4,551,984, as compared with a deficit of $1,781,435 for the fiscal year 1912. The increase in revenue is attributed to the operation of the parcel-post system. The distribution of annual expense among the various services is shown below:

	1900	1911	1912	1913
Service in Post Office	$51,214,498	$112,898,369	$116,517,402	$123,454,470
Railway mail service	8,839,767	20,106,909	20,711,675	22,925,614
Rural delivery service	420,499	37,145,757	41,889,523	45,702,413
Railway mail pay	37,315,724	50,583,123	51,691,301	51,959,387
Other means of transportation	7,794,212	13,175,366	13,288,790	13,375,142
Transportation foreign mail	2,155,567	3,315,349	3,917,371	4,258,621

Nature of the Various Services.—The length, annual travel and rate of expenditure for the various classes of mail services other than star routes for the fiscal year ending June 30, 1913, are shown in the following table:

	Number	Aggregate Length	Annual Travel (miles)	Annual Rate of Expenditure
Star routes in Alaska	20	3,873.00	206,491.00	$190,916.93
Steamboat routes	244	31,912.02	5,385,729.89	762,947.16
Mail-messenger routes	7,722	5,207.34	12,047,360.88	1,728,371.09
Pneumatic tube routes	6	55.49		943,408.20
Wagon routes (in cities)	290	1,281.19	5,352,758.77	1,760,974.86
Railroad routes	3,425	228,618.68	471,559,089.09	46,867,113.55
Railway post-office cars				4,598,917.07
Electric and cable car routes	569	7,641.12	12,369,969.40	716,195.04
Total	12,276	278,588.84		57,568,843.90
Star routes in Alaska (emergency)				50,931.00[1]
Steamboat routes (pound rate)				97,028.99[2]
Railroad transportation, misc.:				
Periodical mails				703,904.37[2]
Mail weighings, etc				315,031.75[2]
Freight on mail bags, postal cards, etc				430,704.22[2]
Railway mail service (officers, clerks, etc)	18,265			22,815,795.07[3]
Mail equipment				427,932.59[3]
Miscellaneous expenses				186.50[2]
Total inland service				82,410,358.39
Foreign mails:				
Aggregate cost		$3,961,232.94		
Less intermediary services to foreign countries		269,453.79		$3,691,779.15
Total				$86,102,137.54

[1] Authorization. [2] Actual expenditures. [3] Estimated actual expenditures.

The total expenditure in 1913 of $86,102,137.54 shows an increase over the total for 1912 of $3,755,490.62; while the inland service cost $82,410,358.39, as compared with $79,150,763.65 in 1912. The increase in the latter may be accounted for principally in three ways: (1) the increased volume and weight of mail handled by reason of the parcel post, resulting in increased compensation of contractors on screen-wagon routes and railroads; (2) the more extensive substitution of motor vehicles for wagons; and (3) the increased distance covered by mail-messenger routes. The greater cost of foreign mails is due largely to the inauguration of a fast service between San Francisco and Sydney, Australia (see *supra*).

Railway Mail Pay.—The total amount paid to railroads in 1913 was $51,959,388, as compared with $51,691,301 in 1912, $50,583,123 in 1911, and $49,405,311 in 1910. The increase was due, not to higher rates, but to an increased number of routes, greater mileage and more extensive travel. The railroads have contended for some time that they are under-

paid for this service (*A. Y. B.*, 1913, p. 558). On Jan. 16 the Post Office Department issued a statement to the effect that the railroads were performing a governmental function and could not expect to make a commercial return on the mail business. On Feb. 26 the railroads replied that they are underpaid to the extent of $29,000,000 annually. Some additional compensation was granted, but this could not exceed five per cent. of the contract terms, under the act of March 4, 1913. While the joint Congressional committee which had investigated the subject was preparing its report a bill was introduced in the House which would, the railroads claimed, reduce their pay by $11,000,000 annually. The report of the joint committee to some extent supported the contention of the railroads that they were underpaid and should be remunerated on a commercial basis, and it proposed a plan of payment which would increase the railroad revenues by $3,000,000 annually. No further action has been taken in the matter.

Postal Savings System.—The work of extending the operation of the postal savings system was continued during the fiscal year 1913, and on June 30 there were 12,820 depositories in operation, as compared with 12,812 on Dec. 1, 1912. During the same period the number of depositors increased from 300,000 to 331,006, and deposits from $28,000,000 to $33,818,870. The average deposit increased from about $90 to $102. The official figures for the fiscal year 1913 show interest due on deposits of $238,444 and a net balance of interest and profits of $399,932. If from this are deducted $425,000 estimated for office expenses and $275,000 for estimated cost of clerical service it is evident that a considerable increase in deposits is necessary to make this branch of the service self-supporting. (See XIV, *Banking and Currency.*)

The Parcel Post.—The growth of the parcel-post business since its inception on Jan. 1, 1913, has been very great. Various changes in operation have been introduced. The use of distinctive stamps has been abolished. Provision has been made for the insurance of parcels not exceeding in value $25 or $50 upon payment of fees of five cents and ten cents respectively; it is estimated that 2,500,000 parcels are insured during a six months' period. A collect-on-delivery service was inaugurated on July 1, 1914. The Department recommended to the Interstate Commerce Commission that the weight limit in the first and second zones be increased from 20 to 50 lb. and in other zones from 11 to 20 lb., and upon approval by the Commission the increased weights became effective on Jan. 1, with accompanying reduction of rates (*A. Y. B.*, 1913, p. 56). The establishment of the parcel post has had the effect of negativing to some extent the preferential consideration accorded third class mail, including books and printed matter. A change in classification, effective on March 16, places books in the fourth class and entitles them to the parcel-post privilege. (See also XVII, *Agriculture.*)

TELEPHONES AND TELEGRAPHS

Telephones.—The Census Bureau during the year published statistics of telephones and telegraphs as per 1912. The following are the returns for all telephone systems in the United States for the years 1912, 1907 and 1902:

	1912	1907	1902
Miles of wire	20,248,326	12,999,364	4,900,451
Number of telephones	8,729,592	6,118,578	2,371,044
Number of messages[1]	13,735,658,245	10,400,433,958	5,070,554,553
Telephones per 1,000 of population	91	72	30

[1] Exclusive of farmers' or rural lines in 1902 and of companies reporting an annual income of less than $5,000 in 1907 and 1912.

The telephone industry does not show the same remarkable development during 1907-1912 as during the preceding five-year period, wire mileage having increased by 7,248,962 miles as compared with a gain of

8,098,913 miles during 1902-1907. Of the total increase in wire mileage from 1907 to 1912, more than 60 per cent. occurred in three divisions, the Middle Atlantic, East-North-Central, and Pacific. The number of telephones increased by 2,611,014 from 1907 to 1912, as compared with an increase of 3,747,534 from 1902 to 1907. The average wire mileage per telephone in 1907 was 2.12, while in 1912 there were 2.32 miles per telephone. The number of messages also failed to increase as fast during the period 1907 to 1912 as in the preceding five years, 1902 to 1907.

The following table shows the distribution by geographic divisions of wire mileage, telephones and messages during 1912:

	Miles of Wire	Number of Telephones	Estimated Number of Messages	Telephones per 1,000 of Population
New England	1,545,252	625,488	810,524,037	92
Middle Atlantic	5,035,019	1,782,145	2,422,868,241	88
East-North-Central	4,645,218	2,378,257	4,025,906,387	127
West-North-Central	2,932,578	1,621,523	2,238,770,606	136
South Atlantic	1,121,458	531,402	869,439,943	42
East-South-Central	977,694	337,292	662,046,512	39
West-South-Central	1,312,553	543,102	1,079,517,948	58
Mountain	558,450	226,652	435,366,129	80
Pacific	2,120,104	683,731	1,191,218,442	149
Total	20,248,326	8,729,592	13,735,658,245	91

The Atlantic and North-Central states naturally have the greatest number of telephones and messages, because of larger population, but the Pacific states show a higher proportion of telephones to population. The greatest increase in the number of telephones per 1,000 of population is found in the East-North-Central division, where in 1912 the average was 127, as compared with 97 in 1907. The West-North-Central and New England states follow in extent of increase. The Mountain states, on the contrary, show an increase of only three telephones per 1,000 of population during the five-year period, 1907 to 1912.

The following table gives the wire mileage, number of telephones, and estimated number of messages for the leading states:

	Miles of Wire	Number of Telephones	Estimated Number of Messages	Telephones per 1,000 of Population
New York	2,790,060	970,449	1,297,849,047	102
Illinois	1,689,074	807,253	1,105,751,431	139
Pennsylvania	1,599,975	626,064	932,707,683	79
California	1,360,544	434,002	725,879,813	168
Ohio	1,161,032	631,206	1,301,503,565	129
Missouri	874,334	404,150	655,616,330	121
Massachusetts	863,426	329,992	401,817,540	94
Texas	821,459	311,980	689,474,644	76

New York, Illinois, Pennsylvania, California and Ohio lead in wire mileage, number of telephones and number of messages, chiefly because of greater population. Iowa shows the highest average number of telephones per 1,000 of population, namely 171, followed by California with 168 and Nebraska with 165, while South Carolina has the small average of but 21 per 1,000. The greatest increases occurred in Minnesota, Illinois, Michigan and Wisconsin, while the smallest increase occurred in Mississippi. Colorado shows no increase, and decreases occurred in Nevada, Washington, Utah and Wyoming.

During the period 1907-1912 a number of the telephone companies changed and improved their methods of accounting, so that an accurate comparison of the detailed income accounts is impossible. Total income, however, increased by 44.4 per cent., and 95.5 per cent. of this income was obtained from the telephone business of the companies. Total expenses, of which salaries and wages form 47 per

cent., increased by 50.4 per cent. The greatest change in the items of income and expenses occurred in interest, which formed 11.8 per cent. of the total expenses in 1907, as compared with 9.9 per cent. for 1912.

The financial statistics for telephone companies having an annual income of $5,000 or over were reported by the Census Office as follows:

	1912	1907
Total income	$255,081,234	$176,700,408
Total expenses	203,754,909	135,475,177
Net income	51,326,325	41,225,231
Dividends	34,120,809	23,448,212
Surplus	17,205,516	17,777,019
Total assets	1,295,670,101	940,357,998
Net surplus over liabilities	60,771,621	48,204,796
Salaried employees	38,753	22,819
Wage earners	144,608	108,851

The relative importance in 1912 of the American Telephone & Telegraph Co. and its subsidiaries, the "Bell Telephone System," among companies having an annual income of $5,000 and over is shown by the following:

	Bell System	Other Systems
Number of systems	176	1,740
Number of telephones	5,087,027	2,239,721
Estimated number of messages	9,133,226,836	4,602,431,409
Average messages per telephone	1,795	2,055
Number of public exchanges	5,853	5,662
Total income	$206,130,830	$48,950,404
Expenses	$163,024,105	$40,730,804
Net income	$43,106,725	$8,219,600
Dividends	$29,709,841	$4,410,968
Total assets	$934,805,563	$360,864,538
Net surplus	$38,422,061	$22,349,560
Salaried employees	31,435	7,318
Wage earners	110,468	34,140

The operations of the American Telephone & Telegraph Co. in 1912 and 1913 were as follows:

	1912	1913
Capital stock	$334,806,375	$344,616,300
Funded debt	$160,384,000	$159,591,000
Stations[1]	7,456,074	8,133,017
Miles of wire	14,610,813	16,111,011
Total earnings	$42,717,993	$45,909,991
Net earnings	$37,907,644	$40,576,746
Net income	$32,062,946	$32,920,090
Dividends	$26,015,588	$27,454,037
Surplus for year	$6,047,358	$5,466,053

[1] Including stations of local, coöperative and rural independent lines associated with or acting as connecting lines.

The combined operations of the entire Bell System, including subsidiaries (except the Western Union Telegraph Co.), and excluding all duplications, were as shown in the following table for the years ending Dec. 31, 1912 and 1913:

	1912	1913
Capital stock	$393,209,925	$395,224,531
Funded debt	294,380,353	341,147,485
Gross earnings	199,172,154	215,572,822
Operating expenses and taxes	75,580,026	86,700,329
Maintenance and depreciation	66,705,438	70,182,970
Net earnings	56,886,690	58,689,523
Interest	14,205,365	16,652,624
Net income	42,681,325	42,036,899
Dividends	29,460,215	30,301,705
Surplus for year	13,221,110	11,735,194

In March, 1914, the U. S. District Court at Portland, Ore., decreed that the American Telephone & Telegraph Co. had attempted to establish a monopoly, and forbade the formation of any combination for that purpose in the future. The Bell companies were ordered to dispose of their holdings in the Northwestern and Interstate (long-distance) companies and to refrain from acquiring any interest in these companies in the future. Contracts by which local companies give their long-distance business to the Bell companies exclusively were declared unlawful.

In February, 1914, by virtue of an agreement with the Department of Justice (*A. Y. B.*, 1913, p. 56), the American Telephone & Telegraph Co. sold its $29,657,200 of Western Union Telegraph Co. stock at $60 per share and agreed not to acquire control of additional independent telephone properties. Independent companies are to be given toll rights over the long-distance lines.

Uniform systems of accounts, effective Jan. 1, 1913, have been provided for telephone companies by the Interstate Commerce Commission, under the provision of the Act to Regulate Commerce as amended in 1910.

Telegraphs.—The figures of the census of telegraphs of 1912 were published during the year. The following table gives a comparative summary of operations for 1902, 1907 and 1912, for land and ocean telegraph systems combined:

	1912	1907	1902
Number of companies or systems	27	26	25
Miles of single wire owned or leased	1,814,196	1,577,961	1,318,350
Number of messages	109,377,698	103,794,076	96,655,287
Number of telegraph offices	30,864	29,110	27,377
Total income	$64,762,843	$51,583,868	$40,930,038
Total expenses	$58,378,952	$41,879,613	$30,948,034
Net income	$6,383,891	$9,704,255	$9,982,004
Assets	$298,288,906	$261,807,899	$195,503,775
Net surplus	$15,849,948	$20,325,939	$18,079,041
Capital stock	$163,645,810	$155,089,575	$117,053,525
Funded debt	$62,741,000	$65,204,000	$45,893,000
Number of employees	37,925	28,034	27,627

Of the 27 companies reported, 21 were land telegraph systems and six were ocean systems. There were 67,676 miles of ocean cable in addition to the land wire mileage given in the table. Net income shows a decline of 34.2 per cent. from 1907 to 1912, chiefly because of a smaller return from sources other than telegraph traffic, and because of an increase in expenses. Assets increased only 13.9 per cent. from 1907 to 1912 as compared with a gain of 33.9 per cent. during the period 1902 to 1907. Capital stock increased 5.5 per cent. and funded debt decreased 3.8 per cent. Net surplus shows a decline of 22 per cent., in spite of the fact that dividends paid by the companies were smaller in 1912 than in 1907 by 17.3 per cent.

The principal business operations of the Western Union Telegraph Co., which largely controls the telegraph business in the United States, in the fiscal years ending June 30, 1912 and 1913, are shown in the following table:

	1912	1913
Stock (issued)	$99,817,100	$99,817,100
Funded debt	32,602,000	28,745,000
Miles of wire	1,517,317	1,543,337
Offices	25,392	26,300
Total income	42,987,807	47,423,443
Expenses	36,063,836	42,959,934
Net revenue	6,923,971	4,463,509
Interest, etc	2,920,417	1,337,229
Net profits	4,003,554	3,126,280
Cash dividends	2,991,823	2,992,166
Surplus for year	1,011,731	134,114

The principal operations of the Mackay Companies, a voluntary association of many allied telegraph companies, which controls the Commercial Telegraph Cable Co. and through it the system known as the Postal Telegraph, were as follows:

	Year Ending Feb. 1, 1913	Year Ending Feb. 1, 1914
Common stock	$41,380,400	$41,380,400
Preferred	50,000,000	50,000,000
Income from investments in other companies	4,136,009	4,202,413
Operating expenses	31,324	30,588
Balance	4,104,685	4,171,825
Dividends	4,069,020	4,069,020
Surplus for year	35,665	102,805

STREET AND ELECTRIC RAILWAYS

Physical Characteristics.—Census statistics were published during the year for street railways in operation in 1912. The following table gives the aggregate returns for 1,260 companies:

	1912	1907	1902
Number of companies	1,260	1,236	987
Miles of line	30,437.86	25,547.19	16,645.34
Miles of track	41,064.82	34,381.51	22,576.99
Operated by electricity	40,808.39	34,037.64	21,901.53
Operated by other power	256.43	343.87	675.46
Number of employees	282,461	221,429	140,769
Number of passenger cars	76,162	70,016	60,290
Number of all other cars	17,854	13,625	6,494
Passengers carried	12,135,341,716	9,533,080,766	5,836,615,296
Number of revenue passengers per mile of track	232,556	216,522	212,217

The five-year period 1907-1912 fails to show any considerable increase in the number of companies. Line mileage, however, increased 19.1 per cent.,

as compared with 53.5 per cent. during the previous five-year period, and track mileage increased 19.4 per cent., as compared with 52.3 per cent. during the period 1902 to 1907. Electricity remains the only important means of propulsion. The proportion of interurban track mileage has steadily increased since 1902 until in 1912 it included 39.8 per cent. of the total.

The number of employees shows a smaller increase for 1907-1912 than for the preceding five years, the increases being 61,032 and 80,660 respectively, while the number of passengers increased by 2,602,260,950 during the period 1907-1912 as compared with 3,696,465,470 during the period 1902-1907. There has been a general increase in density of traffic, the figures reflecting this by an increase of 16,034 during the five years preceding 1913 in number of persons carried per mile of track. Especially noticeable in the above table is the enormous increase since 1902 in the number of cars other than passenger cars, owing to the increasing use of electric roads as freight carriers. The increases in these were 31 per cent. from 1902 to 1907 and 175 per cent. from 1902 to 1912, as compared with an increase in passenger cars of only 26 per cent. from 1902 to 1912.

The following table shows the distribution of trackage operated:

Geographic Division	1912	1907	1902
New England	5,299.02	4,862.93	4,013.52
Middle Atlantic	10,064.31	8,891.06	6,168.14
East-North-Central	11,883.69	10,353.18	6,148.88
West-North-Central	3,030.50	2,454.61	1,688.67
South Atlantic	2,899.75	2,244.46	1,628.90
East-South-Central	1,290.68	1,074.75	762.90
West-South-Central	1,371.80	839.98	553.13
Mountain	1,047.52	630.24	409.48
Pacific	4,145.64	3,002.78	1,194.70
Total	41,032.91	34,353.99	22,568.32

The increase in track mileage from 1907 to 1912 was general throughout the United States, but it will be noted that of the total increase the Middle Atlantic and East-North-Central states furnished about one-third. As is shown in the following table, trackage shows substantial increases in New York, Pennsylvania, Ohio and Illinois:

States	1912	1907	1902
New York	4,485.81	3,809.19	2,797.90
Pennsylvania	4,269.53	3,762.07	2,504.58
Ohio	3,999.22	3,671.45	2,338.50
Illinois	3,185.73	2,753.71	1,659.35
Massachusetts	2,950.96	2,851.11	2,503.11
California	2,605.28	2,013.49	829.10
Indiana	2,323.38	1,928.78	656.63
Michigan	1,526.25	1,323.71	1,048.26
New Jersey	1,308.97	1,319.80	865.66

All of the states show an increase during the period 1907-1912 with the exception of New Hampshire, New Jersey and Delaware.

Finance.—The condensed income account and capitalization of the operating and leased roads for 1902, 1907 and 1912 are as follows:

	1912	1907	1902
Gross income	$621,535,884	$477,657,503	$276,643,526
Operating revenue	567,511,704	418,187,858	247,553,999
Operating expenses	332,896,356	251,309,252	142,312,597
Net earnings	234,615,348	166,878,606	105,241,402
Deductions from income	207,213,780	157,560,700	86,374,347
Net income	81,425,748	68,787,551	47,956,582
Dividends	70,992,218	54,485,274	33,039,171
Surplus	10,433,530	14,302,277	14,917,411
Capital stock	2,384,344,513	2,097,708,856	1,315,572,960
Funded debt	2,324,223,628	1,677,063,240	992,709,139
Total capitalization	4,708,568,141	3,774,772,096	2,308,282,099

The gross income of the companies shows an increase during 1907-1912 of $143,878,381, or 30.1 per cent., as compared with an increase of $201,013,977, or 72.6 per cent., during 1902-1907. While operating expenses increased 32.5 per cent. during the period 1907-1912, as compared with 76.6 per cent. during the period 1902-1907, operating revenues showed an increase of 35.7 per cent. for the former period, and 68.9 per cent. for the latter. Thus the increase in revenues has exceeded the increase in expenses, and net earnings aggregated $234,615,348 in 1912, as compared with $166,878,606 in 1907, an increase of 40.5 per cent., as compared with an increase of 58.5 per cent. during the years 1902 to 1907. Deductions from income show an increase during 1907-1912 of $49,653,080, or 31.5 per cent., and net income shows a gain during the same period of $12,638,197, or 18.4 per cent. The larger net income for 1912 may therefore be said to be due to the comparatively lower operating expenses (these being only 58.7 per cent. of operating revenues, as compared with 60.1 per cent. in 1907) and to smaller requirements in the nature of taxes, interest and rentals. The ratios of operating expenses to operating revenues range from 48.5 per cent. in Oregon to 84.9 per cent. in New Mexico and Arizona.

Inasmuch as the number of companies has increased by only 24, while net income increased by 18.4 per cent. over 1907, the dividends paid have grown considerably, but this has also been partly at the expense of surplus, which was smaller in 1912 than in 1907 by $3,868,747. Operating, as distinguished from lessor, companies showed a large increase in net income, the former gaining 53.5 per cent., while the latter, having declined in number from 291 to 285, showed a decrease of 31.4 per cent.

Total capitalization shows an increase of $933,796,045, the increase in the funded debt being responsible for $647,160,388 or 69.3 per cent. of this. The total cost of construction and equipment as reported by a large number of companies was practically the par value of their outstanding stocks and bonds, but there were many exceptions to this rule, due to the investment of surplus earnings in plant and equipment without a corresponding increase in capitalization.

RAILROADS

Physical Condition and Services.—The single track mileage of all the railroads covered in the statistical abstract issued by the Interstate Commerce Commission on July 1, 1914, was 244,418. This return represents the mileage on June 30, 1913. On the lines included there were 63,378 locomotives, 2,102 more than in 1912; and 2,445,508 cars, 76,566 more than in 1912. Of the total cars in service, 2,273,564 were in the freight service, 51,700 in the passenger service, and 120,244 in company service. The total number of employees was 1,815,239, an increase of 115,298 since the same date in the year 1912.

During the fiscal year 1913 the railways covered by the abstract carried 1,033,679,680 passengers, an increase of 33,307,397 over corresponding returns for 1912. The total freight carried, including freight received from connections, was 2,058,035,487 tons, an increase of 239,239,857 over the tonnage carried in the preceding year. The aggregate ton mileage was 301,398,752,108, exceeding the ton mileage of 1912 by 37,618,843,854.

Operating Revenues.—The operating revenues in the fiscal year 1913 of the lines included in the Commission's abstract of July 1, 1914, were $3,125,135,798, as compared with $2,826,958,366 in 1912. The official returns of the Commission for the fiscal year 1914 are not as yet available. Unofficial returns published by the Bureau of Railway News and Statistics including a somewhat greater mileage, however, indicate a decline from about $3,171,000,000 in the fiscal year 1913 to $3,092,000,000 in 1914. These unofficial returns show the sources of the operating revenues of the railroads in 1913 and 1914 to be approximately as follows:

	1913	1914	Percentage of Total Operating Revenues, 1914
Freight	$2,211,814,665	$2,136,189,825	69.09
Passenger	703,251,936	703,310,933	22.75
Other transportation	221,408,484	216,991,244	7.02
Non-transportation	35,072,407	35,177,711	1.14
Total	$3,171,445,992	$3,091,669,713	100.00

Operating Expenses.—The operating expenses of the lines covered by the Commission's abstract of July 1, 1914, were $2,169,968,924 for the fiscal year 1913, as compared with $1,959,094,658 in 1912. Unofficial returns, moreover, show an increase from approximately $2,200,991,000 in 1913 to $2,236,183,000 in the fiscal year 1914. These unofficial returns of operating expenses were distributed among the main classes of expense as follows:

	1913	1914	Percentage of Total Operating Revenues, 1914
Maintenance of way and structures	$423,872,363	$419,070,081	13.56
Maintenance of equipment	520,677,293	538,302,997	17.41
Traffic expenses	63,723,219	64,413,753	2.08
Transportation expenses	1,116,553,224	1,132,744,096	36.64
General expenses	76,194,182	81,651,591	2.64
Total	$2,200,991,281[1]	$2,236,182,518	72.33

[1] Includes some unclassified expenditures.

Net Income.—The net operating revenue as officially reported by the Interstate Commerce Commission in its abstract of July 1, 1914, increased from $867,863,708 in 1912 to $955,166,874 in 1913. During the fiscal year 1914, however, there was a decline in net operating revenue, unofficial returns showing a decline from about $970,455,000 in 1913 to $855,472,000 in 1914. The operating ratio, moreover, which was officially reported as 69.16 in 1912 and 69.30 in 1913, was unofficially reported as 69.40 in 1913 and 72.33 in 1914.

"Net corporate income," the net income remaining after all income has been included and all expenses deducted, was officially reported as $488,546,479 in the fiscal year 1913 as compared with $401,819,491 in the previous year. Complete data for the year 1914 are not now available, but incomplete returns indicate that net coporate income underwent a decline. (See also XIII, *Economic Conditions.*)

Capitalization.—The increase in capitalization noted in previous years continued during the year 1913, the total outstanding railroad securities increasing from $19,533,750,802 par value in 1912 to $19,796,125,712 in 1913. The assignments of capitalization as reported by the Interstate Commerce Commission were as follows:

Classes of Securities	1912	1913
Common stock	$6,882,813,008	$7,231,515,045
Preferred stock	1,586,747,679	1,379,096,282
Mortgage bonds	8,019,700,886	8,186,366,426
Collateral trust bonds	1,279,128,266	1,189,636,796
Plain bonds, debentures and notes	1,067,567,350	1,107,076,783
Income bonds	263,441,054	250,290,655
Miscellaneous funded obligations	116,170,300	82,858,275
Equipment trust obligations	318,182,259	369,285,450
Total	$19,533,750,802	$19,796,125,712

This reported capitalization of the railroads in 1912 and 1913 may be compared with a reported investment in road and equipment aggregating $15,874,579,626 in 1912 and $16,351,639,266 in 1913.

Dividends.—The railroads included in the Commission's abstract of July 1, 1914, declared dividends in the fiscal year 1913 aggregating $327,457,000, as compared with $400,309,000 in 1912 and $460,195,000 in 1911.

Railroad Consolidation.—The discontinuance of the current mileage tables in which the Interstate Commerce Commission during past years published the official mileage of American railways classified according to large groups or systems, has made the continuance of the consolidation tables found in previous issues of the YEAR BOOK impracticable. Although mileage data may be obtained from other sources, the results obtained for the current year would not be comparable with those of the preceding year. The following account of current changes, however, follows the general grouping accepted in the YEAR BOOK for 1913 (p. 564).

In the group of so-called Vanderbilt lines plans are under way to change the manner of controlling the Lake Shore & Michigan Southern. Action has been taken to merge the company with the New York Central & Hudson River Railroad Co. The consent of the necessary number of stock and bond holders has been obtained, and the Interstate Commerce Commission has reported in favor of the plan. Application for approval is now pending before the railroad commissions of various states. The plan also includes the merger of various other subsidiaries, the new consolidated company to be known as the New York Central Railroad Co. The joint control of the Boston & Albany by the New York Central and the New York, New Haven & Hartford railroads, moreover, was abandoned, the latter company announcing that in deference to the wishes of the Interstate Commerce Commission it would terminate the "Boston & Albany agreement" of 1911. This action leaves the Boston & Albany under the undivided control of the New York Central & Hudson River Railroad. The Chicago & Northwestern Railroad Co., which is affiliated with the Vanderbilt group by minority stockholdings and community of interest, has begun several extensions in Iowa, Illinois and Wisconsin.

In the Pennsylvania Railroad group it was announced that the company acquired title to the Lewisburg & Tyronne Railroad, that it merged the property of the Hollidaysburg, Bedford & Cumberland Railroad, and that it opened for operation its New Shade Creek branch on the Pittsburgh division. The proposed lease of the West Jersey & Seashore for a period of 999 years, however, was denied by the New Jersey Board of Public Utilities Commissioners. In regard to the published statements that the Department of Justice was investigating the legality of the relations existing between the Pennsylvania and the Norfolk & Western railroads, the directors of the former assured the Attorney-General that they would coöperate with the Department of Justice in any legal steps which it may deem appropriate.

In the Morgan group of lines various changes affecting ownership or control occurred. The Louisville & Nashville merged the property and franchises of the South & North Alabama Railroad which it formerly controlled by stock ownership; and it was reported, although not officially confirmed, that it was about to take over for operation the Chicago, Indianapolis & Louisville Railway which has been jointly controlled by the Louisville & Nashville and the Southern Railway. The Chicago, Indianapolis & Louisville has meanwhile purchased the Chicago & Wabash Valley Railroad. The Pere Marquette Railroad continues to be operated by receivers and various foreclosure suits have been instituted which may ultimately affect the financial control of the line.

The Wabash Railroad of the Gould group of lines, likewise, continues to be operated by receivers, much difficulty having been encountered in arriving at a satisfactory plan for reorganization. The Wheeling & Lake Erie is also in the hands of a receiver, the court having entered a final foreclosure decree which is to become effective unless the shareholders within a prescribed period redeem the road's obligations. On Aug. 11, the International & Great Northern Railway was placed into the hands of receivers.

The Rock Island system, of the Moore group of lines, is endeavoring to reorganize its financial affairs, is confronted by suit for foreclosure sale, and is being investigated by the Interstate Commerce Commission. Phelps, Dodge & Co. have announced, moreover, that they are not the owners of any of the securities of the Rock Island Co.

On Feb. 11 the Government entered suit against the Southern Pacific Co., of the Harriman group, in an endeavor to compel it to dispose of its Central Pacific holdings. The Union Pacific on July 20, after disposing of various suits filed by preferred shareholders, distributed its holdings of Baltimore & Ohio shares to its common stockholders. On May 28 the U. S. District Court at Omaha ordered the Union Pacific to turn over its control of the St. Joseph & Grand Island Railway to the minority stockholders of the latter company, but the Union Pacific has appealed to the Circuit Court of Appeals at St. Louis. The Cincinnati, Hamilton & Dayton went into the hands of receivers on July 21.

During the year the Chicago, Burlington & Quincy, of the Hill group of lines, completed its through line between Seattle and Galveston by completing the gap of 124 miles which formerly prevented through train service; it also leased and purchased the Herrin & Southern Railroad's property and franchises. The Great Northern Railway resumed construction on the new line between Lewiston, Mont., and New Rockford, which will have when completed a mileage of 325 miles.

The Frisco System, of the Erb-Yocum group, continued to be operated by receivers, and its financial affairs have been investigated by the Interstate Commerce Commission (see *infra*). The Chicago & Eastern Illinois Railroad, which is controlled by the Frisco System, likewise remained in the hands of receivers. The Missouri, Kansas & Texas Railway took over on a long-term lease its subsidiary lines in Texas, as permitted by an agreed judgment entered on Feb. 6. The Chesapeake & Ohio Railway was by Federal court decree required to dispose of its holdings in the Kanawha & Michigan Railway which was controlled jointly with the Lake Shore & Michigan Southern.

The financial affairs of the New York, New Haven & Hartford Railroad, of the New Haven group, were investigated by the Interstate Commerce Commission, and the company was by Federal court decree ordered to dispose of its holdings in the Boston & Maine and also in certain other railroad subsidiaries (see *infra*). The stockholders of the Maine Central on March 31 ratified the proposal to authorize a trust to purchase 159,601 shares of Maine Central stock held by the Boston & Maine.

Various changes occurred among certain railroads not definitely affiliated with the above mentioned groups. The Seaboard Air Line was reported to have acquired control of the Macon, Dublin & Savannah Railroad. The Atchison, Topeka & Santa Fe acquired control over various small lines, including the Oklahoma Central and the Kansas & Southwestern; and it merged a number of subsidiaries formerly controlled in various ways by consolidating them with the Gulf, Colorado & Santa Fe.

Physical Valuation.—In order to carry out the requirements of the Act of March 1, 1913 (*A. Y. B.*, 1913, pp. 1, 567, 576), the Interstate Commerce Commission has organized a Division of Valuation, and for purposes of ascertaining the cost of reproduction less depreciation it has divided the country into five sections, each of which is in charge of a principal engineer. The headquarters of the various sections have been established as follows: eastern district, Washington; central district, Chicago; western district, Kansas City; southern district, Chattanooga; and Pacific district, San Francisco. (See also XXI, *Civil Engineering.*)

Freight Rates.—The year has been one of unusual importance to the railroads because of the two decisions of their petition of May, 1913, requesting of the Interstate Commerce Commission permission to increase freight rates throughout official classification territory (Opinion No. 5860, 31 I. C. C. Repts. 351). The advances proposed by the carriers ranged from three to 50 per cent.

or an average of about five per cent. in the general level of freight rates, excepting, however, tidewater hard-coal rates, the rates on sugar, iron and zinc ore and livestock shipped between certain points, and numerous New England rates which they did not propose to increase. They requested these advances with a view to increasing their annual income by approximately $50,000,000, so as to overcome in part (1) the difficulty of maintaining their properties; (2) the danger of impaired credit and resulting inability to obtain additional construction and improvement funds; (3) the difficulty of maintaining the efficiency of their service; (4) the inability in many instances of paying a fair return on their investment; and (5) their declining net operating and net corporate incomes and their increasing operating ratios. The findings of the Commission as regards the railroads of official classification territory considered as a whole convinced all of its members that existing revenues are inadequate, and it reported as follows:

> In view of a tendency towards a diminishing net operating income as shown by the facts described we are of opinion that the net operating income of the railroads in official classification territory, taken as a whole, is smaller than is demanded in the interest of both the general public and the railroads; and it is our duty and our purpose to aid, so far as we legally may, in the solution of the problem as to the course that the carriers may pursue to meet the situation.

The majority of the Commission concluded, however, that certain groups of railways are not in need of additional revenues, and that such need where it does exist is greatest in case of that group of carriers operating in Central Freight Association territory. The Commission consequently granted an advance in freight rates only to the lines operating in one part of official classification territory.

The Commission's first decision, handed down on July 29, may be summarized as follows:

(1.) A five per cent. advance of class rates in Central Freight Association territory.

(2.) A five per cent. advance of commodity rates in Central Freight Association territory, excepting those on brick, clay, tile, coal, coke, starch, cement, iron ore and plaster, and excepting also those covered by unexpired decisions.

(3.) It suggested as possible sources of additional revenue or decreased costs (*a*) an increase of passenger fares; (*b*) an examination of freight tariffs with a view to increasing individual unremunerative freight rates; (*c*) the collection of reasonable charges for so-called special freight services, such as freight storage, free time for loading and unloading, collecting and delivering, transporting containers, furnishing and transporting dunnage, wharfage and dockage services, refrigeration, reconsigning, switching, lighterage, spotting cars, loading and unloading, elevator allowances, transit privileges, etc.; (*d*) the increase of operating economy and efficiency; (*e*) the sale of non-transportation properties; (*f*) an examination of the extent to which construction and other capital costs are increased as the result of dealings with concerns in which railroad officers, directors or employees are interested; (*g*) the revision of expiring Pullman-car contracts; and (*h*) the operation of a railroad mail service on a profitable basis. Two members of the Commission dissented from the majority opinion in so far as the permission to increase freight rates was granted to but one section of official classification territory.

The Commission's decision was based largely on the periods 1900 to 1913 and 1910 to 1913. Since the returns issued since the close of the fiscal year 1913 showed an even lower return on investment and a higher operating ratio, and since contrary to former years gross as well as net revenues were unfavorably affected during the latter half of the fiscal year 1914, the carriers again petitioned the Commission for a reopening of the five per cent. rate case. Their petition was granted and further hearings, restricted to new evidence, were held by the Commission in October.

By a vote of five to two on Dec. 18 the Commission granted the applica-

tion of the railroads in official classification territory for the increase in rates denied in the earlier decision. The decision awards the carriers five per cent. on everything but coal and iron ore, and is expected to add nearly $50,000,000 a year to revenues of the lines east of the Mississippi and north of the Potomac and Ohio rivers. The only exceptions made were those which were expected by the railway managers. Increases on bituminous coal and coke were denied because of the recent investigation, as a result of which maximum rates were prescribed. The advances on anthracite coal and iron ore were not allowed because they are before the Commission for review in other proceedings. Rail-lake-and-rail, lake-and-rail, and rail-and-lake rates were not to be changed because the carriers have increased the rates by water and so lessened the differences between the combination and the all-rail charges. Rates which are governed by unexpired orders of the Commission are not to be changed. On the other hand, the railroads received an unexpected award in the permission to raise rates on cement, starch, brick, tile, clay and plaster in Central Freight Association territory. The Commission now allows these rates to be increased throughout official classification territory, although they were excepted by the decision of July 29 from the increases allowed in the Central Freight Association territory. The Commission also suspended its rule requiring the filing of new tariffs 30 days in advance of the date on which they are to go into effect in order to make the relief available at the earliest moment. The order authorized the roads to put the higher rates into effect on ten days' notice.

The average receipts per ton per mile as reported by the Interstate Commerce Commission on July 1, 1914, was 0.729 cent in the fiscal year 1913, as compared with 0.743 cent in 1912. The average receipts per passenger per mile were 2.008 and 1.985 cents respectively. The average receipts per ton per mile and per passenger per mile for the railway system as a whole during the years 1900 to 1913 are shown in the following table:

Year	Receipts per Ton per Mile, cents	Receipts per Passenger per Mile, cents
1900	.729	2.003
1905	.766	1.962
1906	.748	2.003
1907	.759	2.014
1908	.754	1.937
1909	.763	1.928
1910	.753	1.938
1911	.757	1.974
1912	.743	1.985
1913	.729	2.008

RULINGS OF THE INTERSTATE COMMERCE COMMISSION

During the fiscal year 1913 the Interstate Commerce Commission decided 724 formally instituted cases and dismissed 139 by stipulation or otherwise, a total of 863, as compared with 778 during the preceding year. In addition, 7,600 informal complaints were docketed, orders were issued in 4,610 special-docket cases concerning refunds to shippers, 1,256 fourth-section docket orders were issued, and 159 investigation and suspension proceedings were instituted.

Among the principal decisions of the Interstate Commerce Commission since the 1913 issue of the Year Book are the following:

1. The Five Per Cent. Advance Rate Case. See "Freight Rates," *supra*.

2. In the matter of the Financial Transactions of the New York, New Haven & Hartford Railroad Co., decided July 11, 1914 (31 I. C. C. Repts. 32, Opinion No. 6569).—The Commission made a detailed investigation of the financial affairs of the New Haven system, as a result of which it pronounced the financial workings of the former management to be "one of the most glaring instances of maladministration revealed in all the history of American railroading." The Commission calls special attention to the following "significant incidents":

> Marked features and significant incidents in the loose, extravagant, and improvident administration of the finances of the New Haven as shown in this investigation are the Boston & Maine despoilment; the iniquity of the Westchester acquisition; the double price paid for the Rhode Island trolleys; the recklessness in the purchase of Connecticut and Massachusetts trolleys at prices ex-

orbitantly in excess of their market value; the unwarranted expenditure of large amounts in "educating public opinion"; the disposition, without knowledge of the directors, of hundreds of thousands of dollars for influencing public sentiment; the habitual payment of unitemized vouchers without any clear specification of details; the confusing inter-relation of the principal company and its subsidiaries and consequent complication of accounts; the practice of financial legerdemain in issuing large blocks of New Haven stock for notes of the New England Navigation Company, and manipulating these securities back and forth; fictitious sales of New Haven stock to friendly parties with the design of boosting the stock and unloading on the public at the higher "market price"; the unlawful diversion of corporate funds to political organizations; the scattering of retainers to attorneys of five states, who rendered no itemized bills for services and who conducted no litigation to which the railroad was a party; extensive use of a paid lobby in matters as to which the directors claim to have no information; the attempt to control utterances of the press by subsidizing reporters; payment of money and the profligate issue of free passes to legislators and their friends; the investment of $400,000 in securities of a New England newspaper; the regular employment of political bosses in Rhode Island and other states, not for the purpose of having them perform any service but to prevent them, as Mr. Mellen expressed it, from "becoming active on the other side"; the retention by John L. Billard of more than $2,700,000 in a transaction in which he represented the New Haven and into which he invested not a dollar; the inability of Oakleigh Thorne to account for $1,032,000 of the funds of the New Haven intrusted to him in carrying out the Westchester proposition; the story of Mr. Mellen as to the distribution of $1,200,000 for corrupt purposes in bringing about amendments of the Westchester and Port Chester franchises; the domination of all the affairs of this railroad by Mr. Morgan and Mr. Mellen and the absolute subordination of other members of the board of directors to the will of these two; the unwarranted increase of the New Haven liabilities from $93,000,000 in 1903 to $417,000,000 in 1913; the increase in floating notes from nothing in 1903 to approximately $40,000,000 in 1913; the indefensible standard of business ethics and the absence of financial acumen displayed by eminent financiers in directing the destinies of this railroad in its attempt to establish a monopoly of the transportation of New England. A combination of all these has resulted in the present deplorable situation in which the affairs of this railroad are involved. . . .

It is inconceivable that these wrongs could have gone on without interference if the members of the board of directors had been true to the faith they owed the stockholders. A number of directors appear in many instances to have voted without knowledge and to have approved the expenditure of many millions without information. According to the testimony of some of the directors, they merely approved what had been done by some committee or by some officer of the company. The directors' minutes reveal that it was largely a body for ratification and not authorization, as the law intended a board of directors should be. . . .

A decree for the dissolution of the New Haven system was signed by agreement between the company and the Attorney-General on Oct. 7. Prosecutions are pending against officers and directors of the former management. (See also *Leading Court Decisions, infra;* and XIII, *The Conduct of Business.*)

3. In the matter of the Receivers of the St. Louis & San Francisco Railroad Co. and the Chicago & Eastern Illinois Railroad Co., decided Jan. 20, 1914 (29 I. C. C. Repts. 139, Opinion No. 5933).—The Interstate Commerce Commission, in accordance with Senate resolutions of June 10 and July 2, 1913, investigated some of the financial transactions of the St. Louis & San Francisco Railroad (Frisco System), at the conclusion of which it reported the insolvency of that railroad to be due to the following causes:

First. Disproportionate capitalization.

Second. The acquisition of new lines.

Third. The financing by the Frisco of the New Orleans, Texas & Mexico Railroad and other South Texas lines.

Fourth. The desire for an entrance into Chicago, resulting in the assumption of heavy fixed charges in the acquisition of the stock of the Chicago & Eastern Illinois Railroad.

Fifth. The sale of its securities at prices so low as to indicate a deplorably weakened credit or an extravagant arrangement with bankers to whom large profits accrued in the purchase of the bonds and the subsequent sale of same to the public.

Sixth. Miscellaneous causes, among which are the payment of dividends

upon its preferred stock in spite of its weakened credit and need of money, poor investments and expensive rentals, among which are the investment in the New Orleans Terminal Co., stock in the Kirby Lumber Co., and rentals paid the Crawford Mining Co.

The Commission in its decision lays particular stress upon the practice of constructing and purchasing new lines through construction or purchasing syndicates in which certain named directors and officials of the Frisco railroad were financially interested, and upon the sale of securities at discounts and commissions so large as to result in excessive profits to various named bankers at the expense of the railroad company and its stockholders. These and other irregularities and extravagances the Commission estimates to have resulted in a charge on the net revenue of $3,500,000 to $4,000,000 a year.

4. In the matter of Rates, Practices, Accounts and Revenues of Carriers Subject to the Act to Regulate Commerce. (St. Paul and Puget Sound Accounts.) (31 I. C. C. Repts. 508, Opinion No. 933.)—Interstate carriers are by section 20 of the Act to Regulate Commerce required to keep their accounts in close accord with the accounting rules and schedules promulgated by the Commission, and in this decision the Commission stated that

> recognizing the value of the accounting rules promulgated by the Commission, as well as the benefit of some supervision over their accounts through official agencies, practically all the carriers subject to the Act have yielded a cheerful acquiescence in our classifications and regulations and have adjusted their accounts in substantial obedience to their requirements. The spirit of cooperation with us in this work and a recognition by the carriers of the true functions of proper accounting are becoming increasingly manifest.

The Commission, however, pointed to several exceptions to this general statement and severely condemns the Chicago, Milwaukee & St. Paul and its subsidiary, the Chicago, Milwaukee & Puget Sound. The former by means of various entries overstated its income for the year 1910 by more than $5,000,000, blaming the reduced net operating revenue for the succeeding year to increased wages and the inability to obtain an advance in freight rates. The Commission, likewise, discovered that had the subsidiary coast extension line kept its accounts in accordance with the uniform accounting rules the $2,255,440 of income reported for the first year of its operation "would have been practically eliminated" and that

> its dividend of two per cent. paid out of "income" for the first year of its operation could not have been paid; and without this income the St. Paul Co., which was practically the sole holder of the stock of the Puget Sound Co., would not have been able to pay its own dividends for the year 1911 out of its income. In order to have made the payment in full it would have been compelled to resort to its surplus from previous years.

The Commission, moreover, stated that the Puget Sound Company's statement of investment in road and equipment was in 1910 overstated by about $100,000,000.

5. The Tap Line Cases, decided July 29, 1914 (31 I. C. C. Repts. 490, Investigation and Suspension Docket No. 11).—In previous reports (23 I. C. C. 277, 549) the Commission had held that certain so-called lumber "tap lines" did not act as common carriers but performed private plant services, and that they were not entitled to a division of the through railroad rate on lumber or logs (*A. Y. B.*, 1912, p. 545). The Supreme Court, however, declared them to be common carriers "as well of proprietary as non-proprietary traffic and as such entitled to participate in joint rates with other common carriers (234 U. S. 1). The Commission, therefore, vacated its earlier orders and reinstated the allowances and divisions which had been in effect on May 1, 1912. (See also *Leading Court Decisions, infra.*)

6. In the matter of the Relation of Common Carriers Subject to the Act to Regulate Commerce to Coal and Oil and the Transportation Thereof (31 I. C. C. Repts. 193, Opinion No. 869).—At the request of Congress the Interstate Commerce Commission rendered a detailed report concerning the relations of trunk lines

and their officials to coal operations in Illinois and incidentally in Indiana. In conclusion the Commission stated that:

From the facts related herein, particularly those describing the industrial railways around St. Louis and those describing the relations of the New York Central Lines to coal properties in Illinois, the Commission believes it important that the public business of transportation should be clearly separated from private business; that railroads should be prohibited from furnishing, directly or indirectly, capital or loans to private enterprises; that railroads should be prohibited from extending the use of their credit for the benefit of private individuals or companies; and that the commodities clause should be enforced and extended to all traffic.

7. In the matter of Fourth Section Violations in the Southeast (30 I. C. C. Repts. 154).—This decision concerns a large number of applications for relief from the long-and-short-haul clause in southern territory. In some instances the Commission permitted the rates to intermediate points to be higher than to more distant basing points, while in others the applications were denied. The Commission considered each application in the light of correlative facts. It stated, moreover, that a rigid application of the long-and-short-haul clause in the South would seriously impair the revenues of many carriers.

8. The following are some of the recent decisions of the Commission bearing upon the collection of charges for special services:

In the matter of Dunnage Allowances (30 I. C. C. Repts. 539, June 12, 1914).

Chicago Lighterage Charges (28 I. C. C. Repts. 390, Nov. 4, 1913).

Rental charges for Insulated Cars (31 I. C. C. 255, June 26, 1914).

The Transit Case (26 I. C. C. Repts. 204, Feb. 10, 1913).

Manufacturers' Railway Co. *et al. v.* St. Louis, Iron Mountain & Southern Ry. Co. *et al.* (28 I. C. C. Repts. 93, June 21, 1913).

Switching Charges (26 I. C. C. Repts. 475, March 10, 1913; 31 I. C. C. Repts. 294, July 6, 1914; 30 I. C. C. Repts. 552, June 8, 1914; 30 I. C. C. Repts. 581, June 13, 1914; 30 I. C. C. Repts. 501, June 8, 1914; 29 I. C. C. Repts. 381, Feb. 2, 1914; 28 I. C. C. Repts. 677, Jan. 6, 1914; 21 I. C. C. Repts. 621, Dec. 3, 1913).

Storage charges in Central Freight Association Territory (28 I. C. C. Repts. 372, Nov. 3, 1913).

Elevator Allowances (30 I. C. C. Repts. 696, June 13, 1914).

F. W. Stock & Sons *v.* Lake Shore & Michigan Southern Railway Co. (Milling in Transit) (31 I. C. C. Repts. 150, May 12, 1914).

Tap Line Cases. See *supra.*

LEADING COURT DECISIONS

The following are the principal court decisions affecting railroads since the last issue of the YEAR BOOK:

1. Kansas City Southern Railway Co. *v.* United States and Interstate Commerce Commission, decided U. S. Supreme Court, Dec. 1, 1913.—In this decision the Supreme Court upheld the uniform accounting system which the Interstate Commerce Commission had promulgated in connection with operating expenses.

2. The Tap Line Cases, decided U. S. Supreme Court, May 25, 1914.—The Court held that the tap lines connecting lumber industries with the railways are common carriers and as such are entitled to a division of through freight charges both on the freight carried for outside shippers and on that carried for the proprietary lumber industries. It overruled the order of the Interstate Commerce Commission which had denied such division and thereby deprived the railroads of one of the sources of additional revenue suggested by the Commission. (See *Rulings of the Interstate Commerce Commission, supra.*)

3. United States and Interstate Commerce Commission *v.* Atchison, Topeka & Santa Fe Railroad, decided by U. S. Supreme Court, June 22, 1914.—The Court upheld the Interstate Commerce Commission and the long-and-short-haul clause as amended in 1910, deciding that the Commission may exercise a "sound legal discretion" in applying that clause of the Act to regulate commerce.

4. Interstate Commerce Commission and United States *v.* Atchison, Topeka and Santa Fe Railroad *et al.*, decided by U. S. Supreme Court, June 8, 1914.—The switching of cars to industrial tracks is not necessarily a special service, for such tracks may

constitute a part of the carrier's terminals. The right to collect a special charge depends upon the actual performance of a special service, and this is a matter of fact to be determined in each particular instance.

5. United States and Interstate Commerce Commission and Federal Sugar Refining Co. *v.* Baltimore & Ohio Railroad *et al.*, decided by U. S. Supreme Court, Dec. 1, 1913.—A railroad may establish a reasonable lighterage zone and make reasonable dock and lighterage allowances to shippers located within such zone, although shippers located elsewhere may obtain no such allowances. The Interstate Commerce Commission was reversed and the Commerce Court was upheld in its decision.

6. The Texas-Shreveport Case, decided by U. S. Supreme Court, June 8, 1914.—The court ruled that the Interstate Commerce Commission has power to regulate intrastate rates when they effect discrimination in interstate commerce.

7. Intermountain Rate Case, decided by U. S. Supreme Court, June 22, 1914.—The power of the Interstate Commerce Commission to establish rate zones was upheld. The carriers had contested the zone system which had been established by the Commission to govern rates to and from points in Rocky Mountain territory, but their complaint was denied.

8. New Haven Dissolution Decree, signed before U. S. District Court at New York, Oct. 17, 1914.—By the decree filed by the Attorney-General and acquiesced in by the carrier's counsel, the New York, New Haven & Hartford Railroad is to dispose of its holdings in numerous trolley and steamship lines, and also in the Boston & Maine Railroad and certain other railway subsidiaries. The final dissolution is to be completed by July 1, 1917, but the subsidiaries are meanwhile in the keeping of a board of 15 trustees who are to act as officers of the Court. (See also XIII, *The Conduct of Business.*)

FEDERAL LEGISLATION

Clayton Anti-Trust Act.—The Clayton Anti-Trust Act contains various provisions affecting railroads. Section 7 prohibits the acquisition directly or indirectly of the whole or any part of the capital stock of another corporation engaged in commerce if "the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition or to restrain such commerce in any section or community or tend to create a monopoly of any line of commerce." It expressly exempts, however, the ownership of the stock of extension companies, connecting lines, branch lines or feeders which are not in competition with the purchasing railroad. Section 9 provides that

> every president, director, officer or manager of any firm, association or corporation engaged in commerce as a common carrier who embezzles, steals, abstracts or wilfully misapplies, or wilfully permits to be misapplied, any of the moneys, funds, credits, securities, property or assets of such firm, association or corporation, arising or accruing from, or used in, such commerce, in whole or in part, or wilfully or knowingly converts the same to his own use or to the use of another, shall be deemed guilty of a felony and upon conviction shall be fined not less than $500 or confined in the penitentiary not less than one year nor more than ten years, or both, in the discretion of the court.

Section 10 affects the construction and financing of railroads and the purchase of supplies by providing that in dealing with concerns in which the directors, managers or purchasing or selling agents of railroads are interested, the dealings shall be valid only in case the interested concerns in open competitive bidding offer the terms most favorable to the carriers. In order to supervise such dealings the carriers are required to file with the Interstate Commerce Commission a detailed statement "showing the manner of the competitive bidding, who were the bidders and the names and addresses of the directors and officers of the corporations and the members of the firm or partnership bidding." Certain other general clauses as to procedure, penalties, personal liability, etc., are applicable to railroads as well as other corporations. (See also I, *American His-*

tory; and XIII, *The Conduct of Business.*)

Railroad Securities Bill.—The regulation of the security issues of common carriers by the Interstate Commerce Commission was an important item of the President's anti-trust programme. A bill for this purpose passed the House but was not passed in the Senate. (See also I, *American History.*)

STATE LEGISLATION

Railroad and Public Utilities Commissions.—Inasmuch as there were but few sessions of state legislatures in 1914, the year furnishes comparatively few important railway laws. No change has been made in the types of commission existing in the various states, which are indicated in the following table:

STATE COMMISSIONS REGULATING RAILROADS

Advisory Powers	Mandatory Powers over Railroads	Public Utilities Commissions	Corporation Commissions	No Commission
None	Alabama	Colorado	Arizona	Delaware
	Arkansas	Connecticut	North Carolina	New Mexico
	California	District of Columbia	Oklahoma	Utah
	Florida	Georgia	Virginia	Wyoming
	Iowa	Hawaii		
	Kentucky	Idaho		
	Louisiana	Illinois		
	Michigan	Indiana		
	Minnesota	Kansas		
	Missouri	Maryland		
	Mississippi	Maine		
	Nebraska	Massachusetts		
	Nevada	Montana		
	North Dakota	New Jersey		
	South Carolina	New York		
	South Dakota	New Hampshire		
	Tennessee	Ohio		
	Texas	Oregon		
		Pennsylvania		
		Rhode Island		
		Vermont		
		Washington		
		West Virginia		
		Wisconsin		

Several acts enacted during the latter part of 1913 and the year 1914, however, amend and extend the powers of existing commissions. The scope of the public-utility commission law of Maryland was extended to transportation by automobiles, and to municipal corporations and other persons supplying gas or electricity for other than municipal use or supplying facilities therefor. The approval of the Commission, moreover, is now required for construction work, and for the exercise of franchises or the abandonment of the same. The Commission is also given power to investigate and order improvements in the quality and methods of distribution of gas and electricity; to prescribe standards of purity and strength therefor; to value the property of gas and electric companies; to prescribe accounts and require reports; and to inspect the property and books of persons subject to the act (Md., 1914, Ch. 445). The Maryland Commission may also prescribe the form of the receipts which the railroads are required to issue for containers (Md., 1914, Ch. 191).

In Georgia the approval of the Railroad Commission is required for the condemnation of property by railroads in order to relocate tracks (Ga., 1914, Act 470). The Public Utilities Commission of New Jersey was empowered to establish telephone and telegraph interconnection between lines when necessary (N. J., 1914, Ch. 239); and the Railroad Commission of Mississippi was invested with the power to fix the rates of street-car companies (Miss., 1913, Ch. 135). In New Hampshire railroad holding companies were brought within the jurisdiction of the Commission (N. H., 1913, Ch. 190), and the public service law of this state was amended, giving additional powers to the Commission and definitely stating old powers with

respect to rates and fares, reconstruction, stock and bond issues and railroad accidents (N. H., 1913, Ch. 145). A Massachusetts Act (Mass., 1914, Ch. 616) requires public service commissioners to devote all their time to such work. (See also X, *Public Services.*)

Freight Rate Acts.—In addition to acts relative to rates referred to above, the following laws were enacted. In New Hampshire rebates and drawbacks are prohibited (N. H., 1913, Ch. 99) and upon a request being filed by a carrier the Commission is required to prepare a schedule of maximum rates or fares, the railroad paying the cost of preparation; and it is to remain in force until changed by authority of the legislature (N. H., 1913, Ch. 106). An act of Utah (Utah, 1913, Ch. 97) makes it unlawful to collect freight charges on the weight of coal in car-load lots in excess of weight delivered to the consignee; and in South Carolina (S. C., 1914, Ch. 373) it is made possible for either consignee or owner to recover payments in excess of the legal rate on any commodity. A law of New York (N. Y., 1914, Ch. 240) gives the Commission power to suspend rates, classifications and schedules for 120 days, while a hearing as to their reasonableness is being held. A Virginia act prohibits discriminations in charges between competing lines by any carrier (Va., 1914, Ch. 21).

Passenger Fare Acts.—In Kentucky a 2½-cent fare law was enacted, applicable to railroads with gross earnings of $4,000 per mile per year or over (Ky., 1914, Ch. 68), and in Arizona a three-cent fare law was approved by a referendum vote (Ariz., 1913, page 17). New Hampshire required the issuance of 500-mile mileage books at a rate of two cents per mile (N. H., 1913, Ch. 92); and in Maryland books for 1,000 miles or less, to be acceptable as the fare of the holder and accompanying persons, were prescribed (Md., 1914, Ch. 667). Mississippi required railroads selling mileage books to "pull" them on their trains (Miss., 1913, Ch. 200). A general anti-pass law was enacted in New Hampshire (N. H., 1913, Ch. 99), and by the same act railroads are required to pay regular rates for advertising and to file with the Commission a list of passes issued. An act of Massachusetts prohibits the giving of free passes to officers or employees of the General Court, with certain exceptions (Mass., 1914, Ch. 679). On the other hand, railroads in New Jersey are required to give passes to specified state officials (N. J., 1914, Ch. 194), and reduced rates to clergymen, etc., are specifically permitted (N. J., 1914, Ch. 163).

Safety Statutes.—Trespassing is forbidden and penalties prescribed therefor in Rhode Island (R. I., 1914, Ch. 953), Maryland (Md., 1914, Ch. 442) and Louisiana (La., 1914, Act 82). Laws regulating grade crossings and their protection were enacted in New York (N. Y., 1914, Ch. 378), South Carolina (S. C., 1914, Act 401) and New Jersey (N. J., 1914, Ch. 181). Acts requiring the use of suitable locomotive headlights were passed in Virginia (Va., 1914, Act 89), Colorado (Col., 1913, Ch. 129), and Arizona (Ariz., 1913, Ch. 47).

A law of Louisiana makes the placing of obstructions upon railroad tracks a crime (La., 1914, Act 232); and an act of Virginia (Va., 1914, Act 232) prohibits the selling, giving away, etc., of switch-lock keys. A New York law (N. Y., 1914, Ch. 69) regulates the manner of heating passenger cars; and a law of New Hampshire (N. H., 1913, Ch. 128) regulates the transportation of explosives. Louisiana requires street-railway cars to have vestibules (La., 1914, Act 16). A law of New Hampshire requires accidents to be reported to the Public Service Commission (N. H., 1913, Ch. 145). Laws regulating the hours of telegraphers, dispatchers, signalmen and others connected with railway operation were enacted in Massachusetts (Mass., 1914, Chs. 723 and 746), and Maryland (Md., 1914, Ch. 26), the latter amending a previous law.

Train Crew Laws.—Laws regulating the number of persons comprising train or switching crews and requiring full crews were passed in Mississippi (Miss., 1913, Ch. 170) and Arizona (Ariz., 1913, Ch. 16). The Missouri full-crew law of 1913 was defeated on referendum at the November election.

Miscellaneous Statutes.—A law of New Hampshire (N. H., 1913, Ch. 37) provides that bonds issued in accordance with the Commission's order are not invalid because issued below par. Another act of New Hampshire (N. H., 1913, Ch. 98), giving the Commission power over accounts, makes it unlawful to keep other accounts than those prescribed, to make false entries or to destroy records or accounts. New Hampshire (N. H., 1913, Ch. 116) requires that caboose cars have four-wheeled trucks, and an act of Virginia requires suitable caboose cars to be provided (Va., 1914, Ch. 87). An act of Arizona (Ariz., 1913, Ch. 43) limits the number of cars in a train, and another law (Ariz., 1913, Ch. 31) regulates the borrowing of construction and equipment funds. An act of Utah requires that the weight of coal cars empty and loaded be shown in waybills (Utah, 1913, Ch. 98).

Various additional duties and obligations were imposed upon railroads in 1914. They are made liable for payment for improvements adjacent to their property in Louisiana (La., 1914, Act 210), Maryland (Md., 1914, Ch. 37) and New Jersey (N. J., 1914, Ch. 206). In Maryland railroads are required to issue receipts for containers, the form of which may be prescribed by the Public Service Commission (Md., 1914, Ch. 191), while a Louisiana statute requires railroads to pay damages at the point of delivery and provides that they may be sued either there or at the point of shipment (La., 1914, Act 81). Collections on c. o. d. shipments must be returned to the shipper in 15 days according to a law of South Carolina (S. C., 1914, Act 339). Railroad companies are required to furnish reasonable and equal facilities for the interchange of traffic in Virginia (Va., 1914, Ch. 21) and to pay shop employees at least semi-monthly in South Carolina (S. C., 1914, Act 399). A law of Louisiana regulates the transportation into the state of intoxicating liquors (La., 1914, Act 202). In South Carolina passenger trains are required to stop at county seats upon signal (S. C., 1914, Act 419).

In Georgia railroads are permitted to relocate tracks provided no stations are left unserved (Ga., 1914, Act 470), and in New Jersey the statute granting the right of condemnation was amended (N. J., 1914, 237). An act of the Louisiana legislature grants to cities of less than 75,000 inhabitants the right to give to railroads the privilege of occupying the streets (La., 1914, Act. 77).

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XXI. ENGINEERING

CIVIL ENGINEERING

FRANK C. WIGHT

Bridges.—A number of railway bridges continue to be replaced by stronger structures designed to carry the much heavier loadings of the modern train. This is a process which has been going on for many years, but there is reason to believe that the train loading has about reached its limit. This is due to the fact that under present conditions of manufacture and construction it is not possible to build economically any stronger roadbed than is at present in use on the best roads, although this roadbed is now near its capacity under the present maximum loadings.

Two record-breaking bridges were begun in 1914—the Metropolis Bridge across the Ohio River at Metropolis, O., which is 3,254 ft. long and has one span of 723 ft., the longest simple truss span in existence; and the Burrard Inlet Bridge connecting Vancouver and North Vancouver, B. C., which has, beside fixed spans, a swing span of 581½ ft. between centers of end bearings, which will exceed the longest present swing span by some 60 ft. The former bridge is under construction; on account of the high bids the latter construction is being held up pending redesign.

The East River bridges at New York City are being strengthened to meet the increased loading conditions of carrying new subway lines. The Queensboro Bridge, the large cantilever across Blackwell's Island, is to be rearranged in regard to traffic so as to distribute the loadings in a better manner, and in the Williamsburg suspension bridge larger pins and members are being placed under traffic. There has been talk of strengthening the old Brooklyn suspension bridge, which is now carrying loads far in excess of that for which it was designed, but no definite action has been taken. The Hell Gate Bridge, the 1,000-ft. arch to carry the New York Connecting Railway from Long Island into the Bronx, has progressed favorably. The approaches and the main abutments are practically completed.

Two very large bridges have been under discussion during the year—a long-span cantilever across the Mississippi just north of New Orleans, and the world's largest bridge, one with three 2,000-ft. cantilever spans, across San Francisco Bay. Neither has passed beyond the discussion stage.

The Quebec bridge across the St. Lawrence River, which contains the largest span in the world, 1,800 ft., has progressed favorably. Fabrication of the steel work is going on continuously and erection of the shore spans is practically completed. The main cantilever erection has not been started. Fair progress has also been made on the large steel bridge across the Mississippi at Memphis (*A. Y. B.*, 1913, p. 575) and the Detroit-Superior high-level bridge across the Cuyahoga River valley at Cleveland. The latter is one of the largest bridges in this country, consisting of a double-deck structure, with 12 concrete-arch spans and a 591-ft. steel-arch span across the river; its total length is 2,880 ft. A very large concrete bridge having two 300-ft. arch spans was started in 1914 at Minneapolis.

Buildings.—The main novelty in building construction continues to be in record-breaking size, and, as is to be expected, New York City supplies the record breaker. This is the new Equitable Building just being completed on the block bounded by Broad-

way, Nassau, Cedar and Pine streets, Manhattan, which though not so high as some other New York buildings has the largest floor space of any building in the world. The Equitable building has three stories below ground and 36 main stories above, with three intermediate tiers, making 41 tiers complete. The building is 542 ft. high and covers for the total height an area of 159 by 308 ft. Thus the total floor space is nearly 40 acres. The following table gives comparative weight in tons of steelwork in some recent steel frame buildings:

Equitable, New York	32,000
Wanamaker, Philadelphia	28,000
Woolworth, New York	26,000
Hudson Terminal, New York	20,000
Continental National Bank, Chicago	16,000

It is interesting to note that although the skyscraper is an outstanding feature of the buildings of Manhattan it forms in reality only a small part of the city's buildings. Figures for 1912 (the latest available) show that nine-tenths of the existing buildings are not over six stories in height and that only a little over one per cent. are over ten stories. Detailed figures are as follows:

Height	Number	Per Cent.
6 stories or less	83,056	89.55
7–10 stories	8,645	9.32
11–13 stories	822	0.89
14–30 stories	217	0.24
31–50 stories	8	
Over 50 stories	1	
Total	92,749	100.00

The fire in Salem, Mass., on June 25, called attention again to the ease with which most of our cities are attacked by conflagration. Practically the only building saved in the path of the fire was a reinforced-concrete warehouse with openings protected by wire-glass. Except for some minor breaking down of concrete surface this building remained intact in both structure and contents after being subjected to most intense heat for many hours. Its survival was due equally to the fire-proof concrete walls and to the protection afforded by the wire-glass windows. A similar example is the Amoskeag Bank Building at Manchester, N. H. This new structural-steel 12-story building with brick and tile walls and wire-glass windows was subjected on Jan. 28 to a ten-hour fire which completely destroyed all of the remaining buildings on the block but through which this bank building passed unscathed. On Dec. 9 fire completely destroyed more than half of the extensive plant of Thomas A. Edison, Inc., at West Orange, N. J. Seven large reinforced-concrete buildings were completely gutted and two of them seriously damaged structurally. The very inflammable contents, utter lack of any fire-protection system and use of plain glass windows and wooden trim contributed to the large damage.

In this connection, the 1912 statistics of the fire-resisting condition of buildings in Manhattan is of interest. Probably the proportion of fire-proof structures is higher here than in most cities.

	Number	Per Cent.
Frame buildings	6,963	7.51
Ordinary construction	82,544	89.00
Semi-fireproof	286	3.49
Fireproof	2,956	
Total	92,749	100.00

At the International Panama-Pacific Exposition at San Francisco most of the buildings are remarkable because of their wood-frame construction, in which the wood members are being used in practically the same manner as steel members are used in the more modern steel-frame design. These buildings are probably the finest example of wood-frame construction ever built. The Horticultural Building has the largest steel-frame dome in existence, with a span of 152 ft.

Railways.—The last official statistics give the aggregate mileage of railway tracks in the United States on July 1, 1913, as 369,580 miles, of which 125,161 miles was extra trackage. Very little of this was new or main-line work. On April 7 the last spike was driven in the main line of the Grand Trunk Pacific Railway and that road, with its eastern connections, is in operation from Portland, Me., to Prince Rupert, B. C. The Canadian Northern Railway, which com-

prises a through line (1,023 miles) from Montreal to Port Arthur, was completed by the driving of the last spike on Jan. 1, 1914. The line is now complete from Quebec to Vancouver.

The most important railway work now going on is under the direction of the Federal Government—the valuation work being conducted by the Interstate Commerce Commission and the Alaska railway surveys under the direction of the Alaska Engineering Commission. The valuation work has now been thoroughly organized and is progressing favorably although necessarily slowly. It will be some time before any definite results are achieved. The Alaskan Engineering Commission was appointed by President Wilson in May, pursuant to the law passed March 12, empowering the President to employ "such officers, agents or agencies in his discretion as may be necessary" to build in Alaska railroads not exceeding 1,000 miles in extent and $35,000,000 in cost, following in general the routes prescribed by the Commission which reported to President Taft on Jan. 20, 1913 (*A. Y. B.*, 1913, pp. 235, 576). The Commission, now engaged in a survey of the various routes, is headed by William C. Edes, late chief engineer of the Northwestern Pacific R. R.; Lieut. Frederick Mears, U. S. A., late chief engineer of the Panama Railroad; and Thomas Riggs, Jr., of the Alaska Boundary Survey. The Commission thus has one member of long experience as locating engineer of western mountain railways, one who has served practically his entire engineering career as engineering and administrative head of the only sizeable government railway and one who has been years in the survey of the sub-Arctic north. (See also I, *American History;* and VIII, *Alaska.*)

Subways.—Construction on the new subways in New York City made the expected progress during the year. Chicago failed in its attempt to get outside capital to invest in the extensive rapid-transit system designed by its Harbor and Subway Commission (*A. Y. B.*, 1913, p. 577), and efforts are now being directed toward the construction of a more limited subway system for the use of surface cars and elevated trains. There seems to be no immediate prospect of its adoption. In Boston the new subway systems described in the last issue (p. 577) are progressing favorably In Philadelphia the City Transit Department has been organized and is engaged in the design of an extensive system of subways and elevated lines. Authorization for these lines is practically promised by the City Councils, but the exact location and method of financing have not yet been determined.

Waterways.—During the year two new canals were opened to commerce, the Panama Canal to 25-ft. traffic on Aug. 16, and the Cape Cod Canal to 15-ft. traffic on July 29. The year's progress in river and canal improvement is reviewed in another department (see X, *Waterways*, and *The Panama Canal*).

A notable engineering work of world-wide interest was started by American engineers in June, 1914, when Lt.-Col. W. L. Sibert, U. S. A., late of the Panama Canal, Arthur P. Davis, chief engineer of the U. S. Reclamation Service, and Prof. Daniel W. Mead of the University of Wisconsin, sailed for China to initiate an extensive flood-prevention scheme which is to be under the direction of the American Red Cross Association acting with the Chinese Government. The work is to be carried out with $20,000,000 bonds to be floated by the Chinese Government. The scheme involves permanent flood-prevention works to reclaim about 17,000 sq. miles of territory in the Yellow River district which has for centuries been overflowed with consequent loss of crops and famine. It is reported that the farmers in this district do not average more than two crops in five years where, if the floods were eliminated, the normal condition would be two large crops each year.

In the United States the year was not marked by the serious floods which made the two previous years conspicuous, but there were isolated instances of floods of sufficient severity to indicate that the cycle of heavy rainfall is still in progress. In Texas (December, 1913, and April), California (February) and Colorado (June) there occurred floods of extreme severity with very great resultant damage.

They were due to very high and concentrated rainfall, combined with the usual unprotected river banks and constricted stream channels.

The Ohio and Mississippi valleys escaped repetition of the previous year's experience, which was fortunate in the former case, particularly, because practically nothing has been done in the devastated Ohio valley to remedy the evident troublesome conditions which aggravated the 1913 floods (*A. Y. B.*, 1913, p. 578). A number of the cities in the valley have instituted extensive studies of the methods of flood prevention applicable to their localities but so far none has been carried out. In the Miami valley in Ohio, which was probably the worst sufferer in 1913, an attempt has been made to form a so-called conservancy district, for which a special act of the legislature was passed. This law, which provided an extra-municipal control of any watershed, in charge of commissioners elected by the various communities, is now running the gantlet of the courts. If finally pronounced valid, work on the flood-prevention works in the Miami valley will immediately proceed under the Act.

Harbors.—The opening of the Panama Canal in the summer of 1914 (see I, *American History;* and X, *The Panama Canal*) marked the event for which much of the harbor improvement of the past five years has been directed. The time is yet too short to note whether the expected increase in commerce due to this opening will be attained, particularly as the European War, coming just at the opening of the Canal, paralyzed the shipping industry during the last half of the year. Practically every port on both oceans and the Gulf is now engaged in more or less improvement, looking toward greater depth of channel and more modern piers. The channel improvement work is being pursued under old and tried methods, but in the construction of the piers great and novel ingenuity has to be exercised in the method of handling freight, which in most American ports is quite primitive. The application of machinery to this work seems to be the outstanding feature of harbor engineering. (See also X, *Waterways.*)

On account of the widespread opinion that a busy port means a growing and prosperous city, it may be well to call attention to Galveston, Tex. In 1880, Galveston had a population of 22,000 and with an unimproved port did practically no export and import business; in 1910 its population was 37,000 and its improved port did a business in 1913 amounting to $290,000,000, second only to New York City in the United States. Obviously the growth of the city was not at all in proportion to that of its commerce, nor was its population increase (and consequently, therefore, its prosperity) any greater than any normal city in this country, although its port is the second in the nation. The lesson is worth the study of harbor-improvement enthusiasts.

Serious fires in the timber piers and warehouses in the ports of Portland, Ore., Seattle, Wash., Portsmouth, England, and Glasgow, Scotland, during 1914 have directed the attention of taxpayers to the necessity of fireproof buildings in harbor construction, a necessity which has long been recognized by engineers. The accumulation of generally inflammable goods in wharf warehouses and the large open floor area on which such goods are stored make the start and continuance of a fire comparatively easy, and the location of wharves, open only to a marginal street and to the water, make fire fighting difficult. When the structures themselves are of fire-increasing rather than fire-resisting construction, the fire risk to the wharves themselves and to the adjoining shipping is very great.

Shore Protection.—A number of very severe storms on both the Atlantic and Pacific coasts in the early winter of 1914 drew attention to the hitherto almost neglected matter of shore protection in the United States. On the coast of New Jersey and almost simultaneously on the coast of southern California, extremely high water approaching a tidal wave in severity and accompanied by severe winds destroyed piers and bulkheads, and, working well inshore, tore out land and reduced buildings with great damage. In Europe, especially in England and Holland, such destruction has for years been guarded against by

foreshore protection consisting of heavy bulkheads and shore paving and groins. These groins are heavy walls or embankments extending out into the ocean at right angles to the shore. They act to divert outshore currents and to prevent the continuous washing away of the beach by the littoral currents. While of value mainly against the normal force of wind and wave they also serve as protection against such abnormal conditions as existed in the winter of 1914. In northern New Jersey, in the summer-resort district, an especial effort is now being made to construct such shore-protection works as will prevent a repetition of the damage. One such bulkhead, in Seabright, was built in the summer of 1914 only to be washed out again in December.

Drydocks.—Three more drydocks 1,000 ft. or more in length have been added to the three noted in the last issue (p. 580). These are the Hughes dock at Bombay, India, opened during the year, the Hunter's Point dock at San Francisco which is now under construction and the Balboa dock on the Panama Canal. The Hughes dock is part of the Alexandra dock system. The San Francisco dock is to be subsidized by the United States Government but built and owned by the Union Iron Works Dry Dock Co. The dimensions in feet of the six largest dry docks, all of which are capable of handling the largest vessels now afloat or projected, are as follows:

Location	Length	Width	Depth
Boston	1,160	120	45
Levis, Quebec	1,150	120	45
Balboa	1,110	110	41½
San Francisco	1,096	120	42½
Gladstone, Liverpool	1,020	120	46
Hughes, Bombay	1,000	100	33.3

Dams.—The highest earth dam in the world is now under construction across Calaveras Creek, about 36 miles southeast of San Francisco. The Calaveras Dam is being built by the Spring Valley Water Co. to impound water for a new reservoir to add to the water supply of San Francisco. It is 240 ft. high, with a sectional thickness at the base of 1,312 ft. and at the top of 25 ft., while the crest will be 1,260 ft. in length. It is being built by the hydraulic-fill method, that is, by sluicing in earth from the neighboring hillside. The only core wall will be a specially made gravel and earth centering.

The other high earth dams of the world are the Necaxa No. 2, height 190 ft. and top width 54 ft., and the Necaxa No. 3, height 175 ft., both at Necaxa, Mexico, and the Twin Falls Dam, 145 ft. high (*A. Y. B.*, 1913, p. 582). In comparison with these very high earth dams, it should be noted that the Arrowrock Dam, the highest dam in the world, which is of masonry and now under construction, is 350 ft. high.

The usual number of dam failures occurred in 1914, but only one was of serious consequence and that solely of a structural nature. On Jan. 15 a section 75 ft. long of the Stony River Dam near Dobbin, W. Va., went out and released the water in the small reservoir it impounded into the Stony River valley and ultimately into the Potomac River 20 miles below. Aside from negligible damage to the banks of the Potomac and the washing out of a small bridge, the only loss was to the dam itself. The dam, a hollow concrete structure about 900 ft. long and 50 ft. high in the deepest part of the valley, impounded storage water for paper mills on the Potomac at Luke, W. Va. It was founded on a clay soil full of sand pockets which later proved to be water-bearing. The builders were concerned for the stability of this soil and therefore placed a cutoff wall down to rock under the dam for most of the length, but for some reason, probably because of the low head, neglected to provide this cutoff for some distance on the ends of the dam. Water penetrated into the sand pockets at the west end of the dam and found a free passage underneath, finally undermining the dam there. Once started, the water soon washed a large section and the unsupported dam above collapsed. The remainder of the dam remained intact and repairs are now being made. The lesson from the failure was most marked; a dam must have a foundation or at least a cutoff reaching clear to impervious strata or under water percolation constitutes a constant menace.

The deepest cofferdam in the world was started in 1914, in the construc-

tion of a new 1,000-ft. pier on the North River, New York City, at the foot of 46th Street, Manhattan. This cofferdam will be over 800 ft. long, and at its greatest depth will retain some 64 ft. of water, which is a 15 to 20 ft. higher head than any cofferdam heretofore built. It is composed of a series of approximate rectangles joined together by common cross walls, each rectangle made up of sheet-steel interlocking piles and filled with earth and rock to convey stability. This system of dam construction is somewhat similar to that used in the design of the cofferdam which was built to unwater the wreck of the warship *Maine* in Havana harbor, but it is made additionally strong by the addition of a heavy riprap fill on the inside and a heavy earth fill on the outside of the dam.

Cement and Concrete.—The increasing use of concrete is not due to any single type of construction to which cement is being applied as a novelty (with the possible exception of concrete roads which are growing remarkably in popularity) but is the result of the ever growing application of the material to all forms of structural work and to the carefully promoted popularity of concrete for the small user, especially on farms. The concrete building for warehouse and factory, where fire protection and cleanliness are prime factors, is coming into wide use, particularly because of the admirable wear and general satisfaction given by such buildings erected within the past few years.

In concrete construction the most obvious improvements have been made in the use of standardized forms and in the method of mixing and placing the concrete. In this latter field the use of compressed air both in mixing and in conveying the concrete is making rapid strides and the development of the gravity system of conveying is more than satisfactory. Inasmuch as the cost of concreting is largely a matter of the forms and of the mixing and conveying the developments noted promise cheaper concrete work in the future.

Tunnels.—The Colorado Supreme Court in July denied the right of the city of Denver to issue bonds for driving a tunnel through the Continental Divide, to be used by the Denver & Salt Lake Railroad and for the transportation of water and electric current. Although the bonds for such tunnel construction were approved by the voters of the city in February, 1914, the Court declared the tunnel contract unconstitutional, because it used municipal funds for the credit or benefit of a private corporation. This is the so-called Moffatt Tunnel, noted in the last issue (p. 578). (See also XI, *Municipal Ownership.*)

The longest tunnel in America, aside from the 18-mile water-supply tunnel for the Catskill aqueduct under New York City, is now under construction on the Pitt River, north of San Francisco, for the Mount Shasta Power Corporation. The tunnel is 36,753 ft. long and 16 by 19 ft. in cross section. It is to be used to carry water for a hydroelectric project. The large tunnels finished during the year are the Snoqualmie Tunnel of the Chicago, Milwaukee & St. Paul Railway through the Cascade Mountains, holed through Aug. 4, total length, 12,000 ft.; and a five-mile railway tunnel through the Jura mountain range in northern Switzerland, holed through July 10. During the year water-works tunnels have been under construction at St. Louis, Milwaukee, Cleveland and New York, and are about to be started in Chicago. In Cleveland, the tunnel is to be lined with concrete blocks, a novelty for water tunnels and of only recent and occasional use in other tunnels.

Water Supply.—In the construction of new water-works systems or in extensive additions to present systems, nothing has been done during the year at all comparable to the Los Angeles aqueduct now practically complete or the mammoth Catskill aqueduct of New York City. The Catskill system is approaching completion with the exception of some isolated structures which will not be ready for some years. The system will be put in service some time in 1915. The project includes 92 miles of aqueduct leading from the 128 billion gallon Ashokan Reservoir in the Catskills; the Kensico Reservoir 77 miles below Ashokan and 30 miles north of the City Hall with 29 billions available

storage capacity; the Hillview Reservoir, 900 million gallons capacity at the city line, for use as an equalizing reservoir; the 18-mile city tunnel beginning at the Hillview Reservoir and passing under Bronx Borough, the Harlem River, Manhattan Borough, the East River and on to two terminal shafts in Brooklyn, 110 miles from the source; and a cast-iron conduit under the Narrows to Staten Island and the Silver Lake Storage Reservoir in Staten Island with 400 million gallons capacity. The nominal capacity of the aqueduct is 500 million gallons daily, but with the present available drainage area the yield will be about one-half of that amount. The total cost of the system will be about $177,000,000. (See also XI, *Water Supply.*)

A remarkable instance of the preservation of cast iron was shown in the taking down of an old cast-iron water tank in New York City in July. This tank was built somewhere in the first decade of the 19th century as a part of the water works of the city. It consisted of a cylinder made up of flanged cast-iron plates, bolted together at sides, top and bottom. It had not been full of water for many years. When taken down to make way for a new building, the cast iron seemed to be in a very good state of preservation.

The usual growth of cities has led in a great number of cases to more-or-less extensive additions to their water supplies; the most noteworthy of those started or continued in 1914 are in Cleveland, St. Louis, Milwaukee and Baltimore.

In water purification no marked improvements have been brought forward during the year. The principle of requiring artificial purification of city water is growing. Statistics collected early in 1914 showed that 17,000,000 people in the United States, or 40 per cent. of the urban population, were supplied with filtered water. Although the present tendency seems to be away from the old slow-sand filtration toward a rapid mechanical filtration, with the addition of harmless chemicals, many sanitary experts still adhere to the slow-sand filter. Some further statistics collected during the year are of interest in showing the effectiveness of the use of hypochlorite of lime as a typhoid preventive. Since 1908 some 600 cities have adopted this method in full or in part. Of this 600, the typhoid statistics of eight representative and large cities were studied for 11 years before and five years after the hypochlorite installation. The population of the cities totals 2,033,000, the average typhoid death rate before hypochlorite installation was 30.2 per 100,000; the average typhoid death rate after installation was 14.4 per 100,000, a reduction of 51 per cent. (See also XXIV, *Sanitary Chemistry.*)

Sewers.—Sewer explosions, due to accumulated gas from industrial establishments but more generally from gasoline leaking from garages, are an ever growing menace. During 1914 practically every city of size has reported such explosions of varying degree, with one in Pittsburgh of unprecedented severity. The Pittsburgh explosion occurred on Nov. 25, 1913, in the main trunk sewer of the Two Mile Run Drainage Basin. It wrecked completely about 5,300 lin. ft. of 10 by 8 ft. sewer besides extending some distance along the lateral connections, and damaging adjacent buildings and streets. The district contributing to the sewer contains about 90 per cent. of the public garages of the city, a number of plants using explosive oils, and a gas-manufacturing plant.

In New York City, the great number of explosions in the garage district led to the adoption of an ordinance requiring all garages to install oil-separating devices at the sewer inlet. On account of the expense of installation the automobile interests opposed the ordinance and managed to get the aldermen to revoke it but on Sept. 22 Mayor Mitchel vetoed the revocation, so the ordinance still holds. While the exact cause of the explosions and a certain preventive have not been discovered, it is certain that the danger from them is very great and the increasing use of automobiles requires drastic measures of relief.

No great project for sewerage systems marked 1914, although the final report of the Metropolitan Sewerage Commission for a system of sewage disposal for New York City was pre-

sented. This project is interesting mainly for the magnitude of the plan, for it is hardly possible that it will be undertaken for many years. Its main feature is the creation of a sewage-disposal island three miles out in the Atlantic Ocean. To this island would be conveyed by tunnel most of the sewage which is now discharged into the waters immediately around New York; this sewage, however, according to the plan, is to receive pretreatment, which it does not now receive. The estimated cost of the system is "somewhere between $50,000,000 and $100,000,000." (See also XI, *Sewage Disposal.*)

In sewage purification nothing definite has developed, but the accepted methods are being closely studied by those cities contemplating the erection or extension of sewage disposal plants. Among other cities which have or have recently had in operation small sewage-testing plants may be mentioned Brooklyn, Indianapolis, Cleveland, Erie, Akron, Baltimore, Columbus and Toronto.

ELECTRICAL ENGINEERING

George F. Sever

Telegraphy.—There has been but little development in telegraph facilities except that more attention is being given to high-speed transmission apparatus. There is now in use between New York and Boston an octuple set which permits four messages to be sent simultaneously either way. A perforated paper ribbon is one of the essential features of this device. There has been a corporate separation of the American Telephone and Telegraph Co. and the Western Union Telegraph Co. in the United States. A report containing many valuable statistics of telegraph and telephone operations of the world, has been issued by the Government. The argument therein bears on the government ownership of the wire service of the country.

Wireless Telegraphy.—This form of communication has been much in evidence during the year on account of its use both on land and sea in connection with the war in Europe. The Government has compelled all foreign vessels lying in its ports to discontinue the use of their apparatus so as to this extent to observe the neutrality of the nation. The wireless station at Sayville, Long Island, N. Y., appears to be the only means of communication between Germany and this country, the German cables having been cut at a point near the Azores. The Sayville station is equipped with Telefunken apparatus which is intended to communicate with Mauen in Germany near Berlin, about 3,700 miles distant. Of the two important stations established in New Jersey, one, equipped with Marconi duplex apparatus, has the transmitting station located at New Brunswick while the receiving station is at Belmar, about 60 miles away. The corresponding stations for Great Britain are at Carnarvon, Wales, and Towyn, 62 miles away. The distance over which communication will be had is about 3,000 miles. This arrangement of stations permits sending and receiving simultaneously without interference, special precautions being taken to prevent the waves of the sending stations interfering with the incoming signals at the receiving stations. Thus rapid and accurate service can be given. The Tuckerton station is a sustained-wave wireless station using the Goldschmidt apparatus; its corresponding station is at Eilvese, near Hanover, Germany. This plant had been in operation for some months but was taken control of by the Government on account of the war. The distance between stations is about 4,000 miles.

Telephony.—During the year the American Telephone and Telegraph Co. and the Western Union Telegraph Co. have become separated in accordance with the desires of the Government under the Sherman law, which relates to operations in restraint of trade. There has been a large increase in the use of the telephone and to-day in this country there are about 9,000,000 telephones over which there are 162 telephone conversations per person per year, as against 16 conversations per person per year in the whole of Europe. Telephone conversations constitute 60.5 per cent. of the

total of the telephone and mail traffic in this country. One most important undertaking nearing successful completion during the year is that relating to the transcontinental telephone lines from New York to San Francisco. At present speech may be had between New York and Denver, but now the range is about to be extended to San Francisco, a distance of over 3,400 miles. So-called loaded phantom lines have become well established features of telephone service, having passed from the experimental stage. Wireless-telephone apparatus has not yet proven of commercial importance.

Lighting.—During the year great progress has been made in the development of the "gas-filled" incandescent tungsten lamp. In this lamp the filament consists of the metal tungsten, but instead of being placed in a vacuum the globe is filled with an inert gas such as nitrogen. The intrinsic brilliancy of these lamps is very high, while the efficiency ranges from 0.5 to 0.75 watt per candle. These units are now being built in sizes ranging from 100 to 1,000 watts, with candle powers approximately 200 to 2,000. They are now being employed largely in street lighting as substitutes in many locations for arc lamps. They are particularly applicable in conjunction with suitable reflectors for use in place of the multiple arc lamps. Series lamps of this type are also being largely used in place of arc lamps in the lighting of streets. This development is leading to a complete change in street and park and public place lighting in this country. For brilliant store lighting and window lighting these units are particularly applicable.

It is of interest to note that in the last six years the carbon incandescent lamp has decreased in percentage of use from 93 to 25 per cent., while the tungsten lamp has increased in use from 0.1 to 40 per cent. The metallized-filament incandescent lamp has increased from six to 34 per cent. in the same period, but its use is slowly decreasing while the tungsten lamp is rapidly replacing not only the carbon and metallized-filament lamps, but the tantalum as well. The production figures for 1914 are: tungsten, 71.6 per cent.; Gem or metallized filament, 16 per cent.; carbon, 12.7 per cent. Naturally the prices for the new type of lamp have decreased materially until now they are about one-quarter of what their cost was two years ago. The city of Chicago is using over 2,000 gas-filled lamps for street lighting and the city of New York is rapidly replacing many of its arc lamps with the newer incandescent lamps.

During the year there has been a considerable increase in the use of the magnetite arc lamps for street lighting, using ornamental poles upon the top of which the arc lamps are placed.

Electric Light and Power Stations.—It is of interest to note the maximum load in kilowatts which the large central stations have actually carried: Niagara Falls Power Co., 133,800 kw.; Commonwealth Edison Co., Chicago, 271,000 kw.; New York Edison Co., 225,902 kw. The total connected load on the system of the Commonwealth Edison Company of Chicago was 908,204 horse power, or 700,000 kilowatts.

The merging of central electric and power stations under one management has proceeded rapidly and holding and operating organizations are now recognized as economic means for the conduct of these branches of the electrical industry. About 29.3 per cent. of all electric power stations are under syndicate or holding-company management. One result of this arrangement has been to reduce materially the cost of service provided by the companies thus managed.

Public-service commissions are now established in 44 states for the regulation and control of public-service corporations, which include electric-lighting, power and railway companies. In spite of the establishment of one of these regulatory bodies in Ohio, the city of Cleveland has, by ordinance, fixed arbitrarily the maximum rates for electricity from the private electric-power corporation at three cents per kilowatt-hour.

The following statistics in regard to electric light and power stations of the United States, taken from the census report published during the year, relate to the years ending Dec. 31, 1912, and June 30, 1902, and cover both commercial and municipal electric plants:

	All Stations[1]			Municipal Stations[2]		
	1912	1902	Increase, Per Cent.	1912	1902	Increase, Per Cent.
Number of stations	5,221	3,620	44.2	1,562	815	91.7
Commercial	3,659	2,805	30.4	.....	.....	.....
Municipal	1,562	815	91.7	.....	.....	.....
Total income	$302,115,599	$85,700,605	252.5	$23,218,989	$6,965,105	233.4
Light, heat and power	$286,980,858	$84,186,605	240.9	$22,663,708	$6,836,856	231.5
All other sources	$15,134,741	$1,514,000	899.7	$555,281	$128,249	333.0
Total expenses	$234,419,478	$68,081,375	244.3	$16,917,165	$5,245,987	222.5
Total number of persons employed	79,335	30,326	161.6	7,940	3,417	132.4
Total horse power	7,528,648	1,845,048	308.0	559,328	160,028	249,5
Steam engines and turbines:						
Number	7,844	6,295	24.6	2,307	1,078	114.0
Horse power	4,946,532	1,394,395	254.6	429,067	147,975	190.0
Water wheels:						
Number	2,933	1,390	111.0	269	82	328.0
Horse power	2,471,081	438,472	463.6	130,261	11,218	1,061.2
Gas and oil engines:						
Number	1,116	165	576.4	.....	.....	.....
Horse power	111,035	12,181	811.5	.....	.....	.....
Kilowatt capacity of dynamos	5,134,689	1,212,235	323.6	368,677	113,380	225.2
Output of stations, kilowatt hours	11,502,963,006	2,507,051,115	358.8	537,526,730	195,904,439	174.4
Lamps wired for service:						
Arc	505,395	385,698	31.0	91,851	50,795	80.8
Incandescent and other	76,507,142	18,194,044	320.0	7,057,849	1,577,451	347.4
Stationary motors served:						
Number	435,473	101,064	330.0	21,895	1,962	1,016.0
Horse power capacity	4,130,619	438,005	843.1	164,291	3,324	4,842.6

[1] These do not include electric plants operated by factories, hotels, etc., which consume the current generated, those operated by the Federal Government and state institutions, or plants that were idle or in course of construction.

[2] As a rule, no cash income is derived by municipal stations for electrical energy used for lighting streets and public buildings, and in order that the income shown may approximate the total consumption and sale of electric current by these stations, the schedule required that the income for service of this character should be estimated on the basis of what would have been charged for similar service by commercial companies in near-by localities.

Power Generation.—There are being installed in the power station of the Interborough Rapid Transit Co. in New York City, three 30,000 kw. steam-turbine driven alternating-current generators. These units consist of two sections, both on the steam-driven and the electrical ends, and the electrical units are permanently coupled together so as to make one generator. Two turbine-generator units are being installed by the Philadelphia Electric Co., one of them being of 35,000-kw. capacity. In this case there is a single turbine and a single generator. There is also a 30,000-kw. machine in the plant of the Commonwealth Edison Co. in Chicago. In Cleveland there have been installed two 3,750-kw. direct-current generators, these being the largest so far constructed and used in this country. A 4,400-kw. direct-current machine has recently been built and is in use at the Longwy Steel Works in France. During the year generators driven by water wheels have been built and installed in units as large as 17,500 kw.

Hydro-Electric Developments.—Several great hydro-electric developments were begun or completed during the year. For the electrification of the Rocky Mountains section of the Chicago, Milwaukee & St. Paul Railroad (see *infra*) power is taken from the Pend d'Oreille River, Washington, where about 120,000 h.p. is now available, which may be increased to 350,000 h.p. by storage facilities. The

San Francisquito plant of the city of Los Angeles will have six turbine units of 14,000 h.p. each, from a net head of fall of water of 1,830 ft., divided into three drops. The city of Seattle is busily engaged on the design of a 50,000-h.p. plant to be located at the outlet from Lake Cushman, about 40 miles from the city. Two large developments in the South, at Stevens Creek, of 31,000 h.p., and at Parr Shoals, of 29,000 h.p., nearly pass into insignificance as compared with these large figures, though they present two examples of very high class engineering. Also in the South is the immense Tallulah Falls development, with its 600 ft. head, the highest in the South. Its five turbines are the highest powered in this country, having developed under test 18,600 h.p. each, though rated at only 16,000 h.p., and it may be added that its 80,000 h.p. is only a small part of the hydraulic power around Atlanta estimated at from 1,600,000 (within a radius of 100 miles) to 3,170,000 h.p., the latter within a radius of 190 miles, that is, within economic transmission at modern voltages, enough to make a great industrial city of the future without a single smokestack. The plant put into operation in October, 1913, on the Ocoee River, in the Appalachian Mountains of northern Tennessee, by the Tennessee Power Co. will ultimately produce 55,000 h.p. The White River development of the Ozark Power and Water Co. is of comparatively small capacity, only 18,000 kw., but is interesting as showing the tendency of engineers to turn from the harnessing of large waterfalls to the economic exploitation of smaller streams, where, by means of storage basins, sufficient water can be obtained for the generation of electricity in profitable quantities near a ready market.

Power Transmission.—A number of very important developments in power transmission have occurred, one of which is the establishment of 150,000 volts as the highest operating voltage on any transmission line. This is used by the Pacific Light and Power Co. of Los Angeles, in the "Big Creek" development. This system will transmit about 50,000 h.p. The longest power line in the world has recently been completed by the Southern Sierra Power Co. in the Sierra Nevada Mountains. The transmission line is more than 400 miles long and has a capacity of 10,000 h.p., which will be used largely for irrigation pumping. A hydro-electric power development with a capacity of 42,000 kw. was completed during the year in the South by the Chattanooga & Tennessee River Power Co. at Hales Bar, on the Tennessee River about 30 miles below Chattanooga. This development required the construction of a dam and a lock, the latter being the largest single-lift in the world. Each lift of the lower gates is 40 ft.

It is interesting to note that 31 of the high-tension plants in this country are operated at or above 100,000 volts working pressure. The longest spans are 3,300 ft., the average being about 625 feet. A very important development in connection with transmission lines is the acceptance of outdoor switching stations and sub-stations. These are employed in the high-tension transmission systems, the only provision in the way of shelter being a small workshop for employees. There is probably more than 600,000 kw. in equipment installed in outdoor stations.

Electric Railways.—Electric-railway development has been slight during the year, the most important work being the electrification of the Pennsylvania Railroad line between Philadelphia and Paoli, a distance of 73 miles. The installation will be 11,000 volts single-phase with a high-tension transmission line on steel poles along the right of way. High-tension direct-current systems are being installed, the voltage used being 1,500; in some cases tensions of 2,400 volts are being employed, while 5,000 volts is being seriously considered for the operation of heavy electric traction systems. On the lines of the Piedmont Traction Co. in North and South Carolina, 1,500 volts is being used. The Chicago, Milwaukee & St. Paul Railroad is electrifying the first section of 113 miles of a 440-mile stretch of railroad across the Belt, Rocky and Route Mountain ranges. Direct-current, 2,400-volt traction has been adopted and regenerated electric braking will be used instead of air brak-

ing. There will be 12 200-ton freight locomotives, four 200-ton through passenger locomotives and two 100-ton passenger locomotives. The Canadian Northern Railway Terminal in Montreal is using electric locomotives and multiple unit motor-car equipments operated on 2,400 volts direct current. The New York Central Railroad is employing electric locomotives of 2,000 h.p. which are capable of hauling 1,200-ton trains on level track continuously at 60 miles an hour.

An interesting electric locomotive is now in use on the Usui-Toge Mountain railroad in Japan. There are two electric motors of 400 h.p. each, one of which drives the wheels on the running rail while the other motor drives a pair of rack wheels on the rack and pinion system.

Gasoline-electric cars are being installed on branch lines in the United States and the Khedive of Egypt has a two-car gas and electric train for his private use. Each engine will develop 120 h.p. In Cuba, in Denmark and in New Zealand, railroad cars driven by electric motors supplied with current from kerosene-electric generating sets are used.

The subway systems of New York have been largely increased and large additions are being made thereto (see XI, *Public Services*). During the last nine years the present subway system has transported 2,198,000,000 persons without a single passenger fatality; entirely apart from the efficiency of this operation, credit must be given to the use of the automatic stop in connection with the excellent signal system.

Electric Automobiles.—Considerable progress has been made in the development and utilization of electric vehicles and the central power station in the medium and large-sized city has made the rate for charging electric vehicles sufficiently low and the securing the current so simple as to increase its sales of electric current for this purpose to a very important degree. In some cities, such as Hartford, Conn., a battery service system is used, the customer's truck or vehicle being supplied with batteries owned by the electric lighting company. Electric vehicles and trucks are now being employed in all lines of commercial service and it is estimated that there are nearly 50,000 electric vehicles of all kinds now in use. The average cost per mile of the electric delivery service of the Commonwealth Edison Co. of Chicago, from the operation of 50 vehicles, is 25.1 cents.

Miscellaneous.—The miscellaneous uses of electricity are increasing each year. Electric cooking apparatus has been developed for all purposes, and in many places electric power is being utilized for drying clothes, particularly in damp and continually moist climates. It has been recognized that electricity can be used for the stimulation of plant growth; vegetables when subjected to electrical treatment have shown as much as 75 per cent. increase over growth in untreated vegetables. Steel as produced by the electrical furnace has increased in amount, 18,000 tons having been produced in Sweden in 1912; there are now more than 20 electric furnaces running in Sweden using some 60,000 h.p. (see also XXIV, *Electrochemistry*). It is interesting to record that the new battleship *California* will be driven by electric motors, the energy being derived from electric generators driven by steam turbines; the collier *Jupiter* has been using such an equipment experimentally for some time (see also XII, *The Navy*).

Electric refrigeration is being used more extensively than heretofore, and a number of small and inexpensive cooling and refrigerating units are now being manufactured for installation in clubs and houses. The largest motor-driven irrigation plant is that in the Snake River Valley in Idaho. There are two pumping stations having a combined rating of about 200,000,000 gal. of water for 24 hours at full load. Centrifugal pumps driven by induction motors are employed. An unattended light house operated by electricity through cables from the shore has been erected at the entrance to Russell Channel, which leads to St. Peters Port at the Island of Guernsey in the English Channel. The shore station is one and a quarter miles distant. A powerful electrical magnet, built for the Paris Museum after the plans of Prof. Weiss of Zurich, is 5 ft. 4 in. tall and weighs nearly two tons; it is to be used for

the study of light, the motions of electrons and the minute movements in the interior of the atom. In medical science, the X-ray is now used in connection with the securing of motion pictures of the operations of the stomach.

From statistics as to exports of electrical apparatus, it is shown that about $2,225,000 worth of apparatus, or approximately one-tenth of our export trade, has been cut off by the war. The government statistics on the electrical exports of this country for the year ended June 30, 1914, show that Japan imported $869,405 worth of generators and $828,000 worth of motors, the largest purchaser of American electrical apparatus with the exception of Canada. The exportation of electric batteries amounted to the large sum of $685,000, while the total export value of motors was $4,541,000, the largest single individual item in exportation of electrical apparatus.

MECHANICAL ENGINEERING

CALVIN W. RICE and LEON GOLDMERSTEIN

Power Generation.—The late nineties of the last century and the early part of the twentieth gave several answers to the problem of more economical power generation. The high-efficiency boiler, the steam turbine, gas producer, gas engine, Diesel engine, explosion engine, blast-furnace and coke-oven gas engines, and finally the locomobile, have all shown, in their respective fields, economies in the utilization of fuel which would have appeared marvelous in the light of the physical knowledge of only a score of years ago. It took approximately ten years to carry the new types of prime movers to what appears to be their highest possibilities of development, and the last two or three years have seen an effort in the direction of opening fresh ground by devising apparatus based on entirely new principles. Some of these new tendencies in power generation, such as the Tesla friction turbine, the Ferranti steam-gas turbine, and the pure gas turbine, have been referred to in previous issues of the YEAR BOOK. Some other ones will be referred to in this issue, the whole showing how the engineering mind, in reply to the demand made on it by the needs of industry, seeks new ways to solve the ever rising problems of the day, while at the same time carrying to their highest development the means already known to the art. This may be taken as a characteristic of the year —continuing progress along old lines, with a growing intensity in search for entirely new ways and means.

Steam still holds its place against all comers of more recent date, and seems likely to continue to do so for a long time to come. The once expected displacement of steam in steel-plant work, for example, has not yet taken place; but, as has been shown by Gasche at the recent joint meeting of the American Institute of Electrical Engineers and the Western Society of Engineers, the energy at the switchboard obtained from large gas engines may be 19.2 per cent. of the energy supply of the gas, quite a high figure; in this case four 2,000-kw. gas engines were at work for a period of three months constantly at full load with peak loads taken up by a large steam turbine. With conditions of load as favorable as those for the gas plant, the steam turbine would require 37 per cent. more fuel. This would indicate the possible delimitation of the two fields; for constant fuel loads the gas engine presents probably the best known source of power, while for variable loads the steam turbine with its ability to handle peak loads will be naturally preferred. On small loads the reciprocating steam engine, or more correctly, steam locomobile, has appeared during the year where it was but sparingly used before, namely, in central-station work, both in northern Europe and in this country. In the Wiborg, Finland, central station, two locomobiles rated at 600 h.p. each are installed in connection with hydraulic power, arranged in such a manner that one locomobile works all the time

at full load, and the other as close to it as possible. Official tests have shown a steam consumption of 9.16 to 9.24 lb. per horse-power-hour. In this country a locomobile-type unit rated at 115 h.p. was installed during the year at Greenpoint, L. I., guaranteed to deliver a horse-power-hour on 1.5 lb. of coal, running non-condensing, and occupying a very small floor space.

The increase in knowledge of motor equipment efficiencies and a better understanding of the conditions under which each kind works best have led to interesting developments in two directions; one the utilization of special types of plants to suit exceptional local conditions, such as fuel available, and the other the combination of several sources of power in one plant, arranged in such a manner as to cooperate in the utilization of heat. The former will be more fully discussed below.

Combination plants may be of several types, pure-steam, gas-steam, gas-electric, etc. In the recently opened generating plant of the Pennsylvania Railroad shops at Trenton, N. J., in daytime the prime mover is a turbo-generator supplying alternating current, while at night an engine-driven dynamo is used, generating direct current, then converted into alternating by a motor-generator set reversed. This is of course a comparatively simple arrangement, the plant being steam-driven throughout. A plant of a far more revolutionary construction is that of the Ford Motor Co. at its Detroit works, the boldness of which is all the more remarkable in that a plant of such novelty has been decided upon where a large amount of power is required, which is a good proof of the engineering progress in this country. The plant will consist of four engines each having two cylinders working with producer gas and two with steam, arranged in tandem and working on two cranks. Steam is generated in special boilers, the feed water for which is first used to cool the gas-engine cylinders, and is then further heated by the exhaust gases and the waste heat from the producer. Each of the four engines will develop 6,000 h.p. at 80 r.p.m. This is expected to constitute the most economical heat-driven power plant in the world.

Every engineer knows how rare are the entirely new developments in the field of power generation as distinct from refinements in the design and construction of apparatus well known in principle. From this point of view the proposal of one of the engineers of the General Electric Company, W. L. R. Emmet (*General Electric Review*, xvii, Nos. 1 and 2), deserves particular attention. He starts from the well known fact that the theoretical efficiency of vapor power processes can be increased by using higher pressures, but since, when steam is used, with rise of temperature the increase of pressure is very rapid, prospects of gain in this direction are not very attractive. On the other hand, mercury boils at 677° F. at atmospheric pressure, and condenses in a 28-in. vacuum at 457° F. Its use can therefore increase the temperature range available and in this way also the efficiency of the engine. The inventor has designed a unit capable of delivering about 100 h.p.; before the new method of power generation can become commercially practicable, however, its essential elements, the mercury turbine, mercury boiler, condensing boiler which produces steam from the heat of condensation of the mercury vapor, etc., will have to be perfected.

What has become known as the fireless locomotive may also be mentioned in this connection. The locomotive is without fire or heating apparatus of any kind, and is designed for use in places where there is danger of explosion. Its reservoir, partly filled with water, is charged with high pressure steam from a boiler placed outside the danger zone, and can work on one charge of steam for several hours of continuous hauling. It will stand for 12 hours in ordinary open-air temperature, with small loss of steam, and can run back to the charging boiler under a very low steam pressure, say 15 lb. per sq. in.

Steam Engineering.—Of late there is even in the old and apparently well worked-over field of steam engineering a tendency to break away from the accepted practice, and to develop entirely new apparatus, such for example as boilers in which the fire is

inside and under the water, instead of being separated from it by metal walls. At the same time, there is going on a constant increase in the size of the units of more or less standard design. In this latter tendency this country may be said to lead the world. Of special interest is the new power plant of the Philadelphia Electric Co., consisting of only two units, one of 30,000 kw. and the other of 35,000 kw., the largest steam turbine in existence. An idea of the size of these giants of power generation may be gained by bearing in mind that their lubrication requires a circulation of oil at the rate of 40 gal. per minute, and that the main bearings of the larger machine are cooled by a circulation of water at the rate of 100 gal. per minute. The condensers, of novel and highly efficient design, are said to be the largest in the world, each being of the two-pass counterflow surface type with a cooling surface of 50,000 sq. ft.

Large boilers, such as those of the Delray plant of the Detroit Edison Co. (*A. Y. B.*, 1911, p. 706), provoked a good deal of criticism when first introduced, all sorts of trouble having been feared from units of such unusual capacity. As a matter of fact there was no unusual trouble with them, and the boilers at Delray have done so much more than was expected of them that all the boilers used were worked always at the economical point and no banked boilers were carried, which means a great saving in fuel. The Detroit Edison Co. is now building a new station which will have 12 boilers, each of which will ordinarily care for 10,000 kw., without any spares in the plant. By installing forced-draft apparatus and by properly designing the stacks and breeching, 250 per cent. of rating will be got out of each boiler.

Among new developments in boiler design may be mentioned the combined cylindrical and water-tube boiler recently produced in Scotland, which is said to combine the accessibility and ease of running of the ordinary cylindrical boiler with the quick-steaming qualities and small space of the water-tube boiler, having in addition a very good thermal efficiency.

Of a more revolutionary construction is the Bruenler boiler with underwater firing. The flame generated by the combustion of a proper mixture of atomized tar oil and air is forced by a blast of compressed air in such a manner that it really develops under the water level. As a result there are no pipes or crown sheets to burn out, no deposits to fear, and for all practical purposes, no possibility of explosions. The most interesting claim for this boiler, which has still, however, to be better proved, is that at the tests made in Germany it has been found to evaporate more water than corresponds, according to the usual theory of evaporation, to the heating value of the fuel. It is claimed that in the tests made in Germany from 20 lb. to as high as 24 lb. of steam per pound of fuel has been obtained instead of a theoretical evaporation of only 14 lb. (*Zeitschr. für Dampfkessel und Maschinenbetrieb*, xxxvii, No. 2, Jan. 9, 1914.)

The problem of boiler safety is one which cannot be as yet considered to be solved, and even the so-called safety boilers appear to be safe only until they have exploded in their turn. Herr Bracht, in a paper read before the Lower Rhine Section of the Verein deutscher Ingenieure, has presented data on a number of explosions of water-tube boilers with headers which were generally considered to be entirely safe, and the explosion in May of a "safety" water-tube boiler at the Drummond Collieries at Westville, N. S., has still more emphasized the necessity for closer specifications rather than an entire reliance on the type of construction. An important beginning for insuring safety of boiler operation in this country has been made by the American Society of Mechanical Engineers, a committee of which, working in collaboration with the main bodies interested in boiler construction and operation, has prepared standard specifications for the construction and operation of boilers which will insure full safety of operation without laying an undue burden on either builders or users.

As regards reciprocating engines, the only really novel design published during the year is that of the Missong single-cylinder compound engine with receiver steam for heating purposes.

The best way to use receiver steam for heating or cooking purposes is by taking it from the receiver between the high-pressure and low-pressure cylinders. The Missong engine solves the apparently impossible problem of providing receiver steam for these purposes from what may be called a single-cylinder engine. In it the high- and low-pressure cylinders are combined in one, and lie on the two sides of a simple piston moving in a smooth cylinder. As the ratio of the cylinders is 1: 1, a large amount of receiver steam is available. As there would be more steam in the low-pressure cylinder than it can handle when there is no outside demand for steam for heating or other purposes, the inventor has made the effective volume of the high-pressure cylinder variable in accordance with the demand for receiver steam, thus maintaining the characteristic of compounding even when no receiver steam is drawn off. (*Zeitschr. des Vereines deutscher Ingenieure*, lvii, No. 51, Dec. 20, 1913.)

Internal-Combustion Engineering.—In few fields of modern engineering has there been so much seeking after new paths as in the design of internal-combustion engines. During the year several very unusual types of engines have been proposed. The Williamson oscillating engine, primarily designed to eliminate thrust on the cylinder walls, and provided for this purpose with trunnions, is an interesting type of low-height motor with open crank case, accessible construction, and an easily dismountable piston, generally convenient for such work as fishing boats. An experimental engine of this type, of approximately 7½ h.p., drove a small cabin cruiser weighing six tons over a very rough part of the North Sea a total distance of 600 miles without giving any trouble, which tends to prove at least its reliability.

Another engine of rather revolutionary design has been patented by a Scotch engineer, John MacDonald. This engine is of interest as an attempt to diminish the loss of heat to the cylinder walls which takes place in gas engines of the usual type, and to convert a larger proportion of this heat into mechanical energy. In order to do this, it is proposed to surround the combustible charge of gas and air by an envelope of pure air and so prevent direct contact between the burning gases and the cylinder walls. To accomplish this purpose, the cylinder is made of two separate parts having a common combustion chamber in the middle. Each of these portions of the cylinder is really a separate unit, with its own valves and piston, and performs different functions, air alone being admitted to the larger cylinder and air and gas to the smaller one. At the end of the charging stroke the larger cylinder is said to contain pure air and the smaller one a mixture of gas and air. As the cylinders approach each other the mixture charge in the smaller cylinder will be compressed into the middle of the air charge and will be surrounded by an envelope of air which, upon ignition, will tend to retard the transference of heat to the cylinder walls and will itself absorb a quantity of this heat, doing, as a result, useful work in driving the piston. While no data are as yet available as to the efficiency of this engine, it embodies a sound principle of thermodynamics.

The Fullagar engine, which has lately attracted a good deal of attention, is a type the main interest of which lies in the fact that in it the weight per horse power does not increase with the size of the cylinder, and that therefore the construction of large units becomes easier than is the case with ordinary gas engines. Its main feature is the use of two pistons in each of two cylinders of a unit connected by oblique rods. The explosion occurs between one pair of cylinders, and the action of the connecting rods produces compression between the other pair. The cylinder is a plain tube supported at either end but free to expand axially, and therefore free from temperature stresses. An experimental engine of 500 h.p. has been installed in the engine room of the Newcastle Electric Supply Co., at Gateshead, England. Although actually delivering nearly 550 h.p., it weighs under 20 tons, less than half the weight of ordinary gas engines of equal power. Although equipped in some important particulars (air and gas supply) with devices of a somewhat makeshift nature, the engine has

shown an actual efficiency of close to 30 per cent., and a mechanical efficiency of 90 per cent., a remarkable showing for an experimental engine. An engine of this type of 2,400 h.p. would require cylinders only 24 in. in diameter, or less than half that of an ordinary gas engine. (Inst. of Mechanical Engineers, Paris, 1914, paper by H. F. Fullagar.)

As regards the status of the large gas engine, the latest coke-oven gas engines built by Thyssen and Co. in Germany are of the twin-tandem double-acting four-cycle type with four gas cylinders and develop at 94 revolutions per minute about 5,000 brake horse power. The Augsburg-Nuremberg Machine Co. claim that they are building engines up to 6,000 h.p. in four cylinders, but it appears that for coke-oven gas engines the upper limit in Europe is about 1,200 h.p. per cylinder, while in this country 850 brake h.p. per double-acting cylinder seems to be the maximum thus far attempted.

The numerous attempts to use the Diesel engine on motor vehicles have not been crowned with success so far, and it appears more and more that, barring unexpected developments, there is little probability of its being applied on passenger vehicles, while, on the other hand, there are promising indications of its application in the future on power trucks.

An earnest and apparently successful attempt has been recently made, mainly in Germany, to produce internal-combustion engines with steel cylinders, partly cast, partly forged and autogenously welded. While somewhat more expensive than the present cast-iron cylinders, such a construction would have the advantage of having the metal distributed just as required by considerations of strains and heat transmission, and not as the foundry wants to have it to make a good casting. In addition, the new construction would be from 40 to as much as 60 per cent. lighter. The use of the thin autogenously welded steel water jacket alone would cut down a large amount of unnecessary weight without in the least affecting either the efficiency or the reliability of the engine. This latter point is of particular importance for aviation, where it is of vital importance that a motor should satisfy the two fundamental conditions of lightness and reliability. While motors have been built delivering close to 0.5 h.p. per pound of weight, the reliability of the aeronautical motor is still so far from having been secured that there is a growing tendency to provide crafts designed for long-distance flights with reserve motors, a rather poor solution, as both motors may fail within a short period of time. The cutting down of weight where it may be done without affecting the reliability, may, on the other hand, help to produce a fully reliable light-weight motor, just as, to a certain extent, has already been done for the automobile.

While the largest Diesel engine so far built in this country is of only 600 rated h.p. (690 h.p. maximum), it is of considerable interest on account of the very severe conditions of guarantee that went with the order, the purchaser insisting that the engine should operate continuously 710 hours out of each 720 hours per month at rated load using the ordinary asphaltum-base California fuel oil.

Gas Turbines and Gas Producers.—The two fundamental difficulties of gas-turbine construction appear to be still unconquered. The first is the lack of a satisfactory rotary air compressor, to supply the air under pressure required for the operation of the turbine without the necessity of introducing a reciprocating compressor with its attendant complicated and wasteful transmissions. The other difficulty is to find a material for the turbine blades that will stand the combined erosive and corrosive effects due to the intense heat of burning gases and their chemical action. Nothing definite has been heard about the only gas turbine which, for a time, promised to present some solution of these difficult problems and which has been at least built in a size approaching commercial requirements (1,000 h.p.).

In the field of gas producers improved types have been recently placed on the market in Europe, of which a few may be mentioned. In the Kerpely producer the water trough, the purpose of which is to seal the bottom of the pressure gas producer while per-

mitting raking of the ashes, is made to revolve on ball bearings so that the ashes are carried around against a fixed scraper arranged in a sloping position which automatically conveys the ashes out of the trough and dumps them into a chute. A rotating elliptical grate is also provided, to crush the clinkers in its motion. The gasification of the coal is more rapid than in an ordinary type of producer. In tests made at Vienna the net efficiency of the plant was found to be as high as 89.8 per cent., of which 75 per cent. was available in the form of gas, and the rest of the heat energy of the fuel was used for the production of steam.

In the new producer of the Crossley type the difficulty of gasifying low grade fuels is overcome in a novel manner, by making special arrangements for easily breaking up the clinker, and leaving the fire grate quite open to the atmosphere. The vaporizer is made entirely separate from the producer proper, thus simplifying the operation and facilitating repairs. The producer is started as a suction plant instead of under pressure, so that there can be no escape of gas. An ingenious automatic device is employed to feed water into the vaporizer at the correct rate, to suit the load on the engine.

The Moore producer is interesting in being a by-product recovery type suitable for plants having an output as small as 300 h.p. The ammonia formed during the gasification of the fuel is lost in the ordinary producer. Its recovery has proved to be economically profitable until now only in units of very large size, and the possibility of recovery in plants of small capacity is of importance, especially in view of the growing demand for by-products created by the expansion of several lines of the chemical industry.

Utilization of Powdered Coal.—Pulverized coal has been used as a fuel for nearly ten years in metallurgical plants. It has proved so successful that the American Iron and Steel Manufacturing Co. has found that by installing a powdered coal plant in connection with open-hearth furnaces where oil is now used as a fuel it can make by an investment of $32.000 an annual saving of $100,000. The application of the same fuel under boilers has proved, however, to be far more difficult. In tests made by engineers at a central station in New York a great difficulty was found in selecting proper lining for water-tube boilers. Kind after kind was tried, and practically none could withstand the fierce heat developed by the fuel for more than two hours until water cooling of the brick lining of the combustion chamber was resorted to. The boiler thus developed is reported to be a success; it has shown a thermal efficiency of 80 per cent., which, though not very striking in itself, still indicates that this boiler presents at least one of the possible solutions of the combustion of powdered coal.

The efficiency of 80 per cent. is worth noticing as it forms the basis for an opinion held by a good many engineers that using pulverized coal under boilers, for which purpose it has to be crushed, does not pay, ordinary coal being burned nowadays with an efficiency of at least 80 per cent. without either consumption of power for the pulverization of the coal or troubles attending its use. On the other hand, however, there are the arguments that, as shown by the comparative success of the Bettington pulverized-coal boiler and the undoubted progress in the use of this kind of fuel in kilns, by American cement manufacturers, the difficulty of its use lies mainly in imperfect design of the machinery for burning it. The German state railways, in the plant at Oels, near Breslau, have succeeded in working out a modified type of forced-draft furnace with a traveling rate in which locomotive cinders can be burned without the admixture of gas coal and without any trouble from baking of the coal or clinker formation. The latter was prevented by the introduction of steam into the hollow grate elements and by insuring a continuous breaking up of the fuel by the motion of the grate elements, which also gives the air of combustion means of access to the fuel.

In the meanwhile a large amount of work is being done in burning coal dust and other hitherto unmarketable low-grade fuels. The Hauto plant of the Lehigh Navigation Electric Co. is one of what promises to be a long chain of plants burning nearby refuse

and transmitting economically and cheaply electric power at high voltages rather than raw fuel. The Hauto plant is designed to have eventually 100,000-kw. turbine capacity with a 25,000-kw. reserve.

Air Machinery.—Quite important improvements have been made in the design of air machinery and especially in its application. An interesting type of rock drill operating on the pulsator principle and driven by a gasoline engine has been developed in this country. The advantage of the gasoline engine is of course that it makes the aggregate available in out of the way places where electric current cannot yet be had. The air is never exhausted, but is used over and over again in a closed circuit, an automatic valve being installed to take care of possible leaks and to maintain the requisite pressure in the circuit. The closed system is filled with air under low pressure, which acts simply as a medium transmitting power from the pulsator piston to the drill piston; it is nothing but a pneumatic "spring," never-wearing and unbreakable, and its use in this manner helps to reduce the power consumption of the apparatus to but one-fourth of that required for the usual air or steam drill of the same work capacity.

In the field of blowing machinery a rather remarkable unit, of the turbo-compressor type, has been built in Germany for a company in South Africa selling compressed air to mines within a radius of 14 miles. The new unit has a capacity of over three and a half million cubic feet of free air per hour, corresponding to an output of approximately 12,000 brake h. p. It showed a steam consumption which only a very short time ago would have been considered scarcely possible even for a small unit of 1,000 h. p. Recent tests have established the remarkable fact that of the units of air sent out, 95 per cent. have been recorded at the consumers' meters, with an average drop in pressure of not more than six pounds.

During the year work of an experimental nature has been done by Dr. Bridgeman, of the physical laboratory of Harvard University, on gases at high pressure, in which pressures as high as 300,000 lb. per sq. in. have been obtained and pressures up to 175,000 lb. per sq. in. measured with reasonable accuracy. These may be said to be the highest pressures attained, and to gain an idea as to their value one need only consider that when a modern gun charged with smokeless powder is fired, a pressure of approximately only 30,000 lb. per sq. in. is developed, and that even nitro-glycerine exploded in a closed vessel gives a pressure of only about 20,000 lb. per sq. in.

Railway Engineering.—The field of railway engineering was during the year under the growing influence of two factors which have already laid a deep imprint on the industry: on one hand, the demand for better and especially safer service; and on the other, with rates stationary and the cost of everything that the railroads are using, including labor, going up, the necessity of rendering the better service insisted on by the public without unduly increasing costs and wherever possible even making economies. In the last issue of the YEAR BOOK (p. 593) the tendency of American railroads to adopt heavier and heavier locomotives was pointed out, which in the period from 1903 to 1912 increased the average train load from 391 tons to 509 tons, or 30 per cent. In the same period the tractive capacity of engines increased 34 per cent. In 1914 the *Railway Age Gazette* addressed an inquiry to the presidents and receivers of 40 railroad systems in the United States as to whether there is still an opportunity of counteracting higher costs through the agency of larger train loads (see also *Civil Engineering, supra*). It found that a large majority of the presidents believe that there is still opportunity for a good addition to the train load on their lines. Darius Miller, of the Chicago, Burlington & Quincy, states that:

> The only apparent limit to a continued increase in the average train load is the growth and the volume of business offered for transportation, and the financial ability of the company. . . . I do not think that there is any limit yet apparent which the ingenuity and ability of mechanical men cannot overcome if the necessary money is provided.

The "ingenuity of mechanical men" has been fully shown in this very di-

rection during the year. The two problems of heavy traffic and of moderate traffic on close schedules have been successfully solved in several new designs of locomotives. The Philadelphia & Reading 4-4-0 locomotive is designed expressly for local and suburban traffic on comparatively short divisions where train loads are not excessive but schedules must be most strictly adhered to. It represents an American type of locomotive which has grown in tractive capacity from 19,000 lb. in 1889 to 27,800 lb. in 1914, and is capable now, owing to careful design and to the introduction of such modern improvements as the superheater and power reverse gear, of delivering a maximum hauling and steaming capacity without overrunning the specified loads. The Pennsylvania Railroad developed for its lines an Atlantic-type locomotive which is claimed to represent the most advanced locomotive design in America at the present time. It has a weight on drivers equal to the heaviest ever used in this country, the lightest weight of reciprocating parts of any locomotive with cylinders of equal size, the greatest capacity for sustained pull at the drawbar at high speed, a new method of equalization, and great refinement in the design and execution of all its details. Although the weight on the drivers is tremendous (133,100 lb.), the dynamic augment per wheel is so low that these locomotives are far easier on the rail and track than the majority of passenger locomotives which have a weight on drivers of from 10,000 to 12,000 lb. less per axle. Finally, the largest and most powerful locomotive ever constructed was placed in service during the year on the Erie Railroad. It is of the triplex-compound or "Centipede" type, and may be described as a Mallet articulated-type locomotive with another pair of cylinders and another group of driving wheels, thus making three complete engines in one locomotive unit. The principle of compounding used on it involves the use of two high-pressure and four low-pressure cylinders, which in itself gives an idea of the advanced design. The Centipede has a tractive effort equal to the combined effort of two Consolidation and one Mallet locomotives, and this power is obtained not by using excessive wheel loads, but by placing the third engine under the tender, and thereby taking advantage of a large weight for adhesion which has hitherto been a dead load requiring a considerable power to drive.

Giant locomotives such as those described require unusually large supplies of steam. The Centipede has a boiler 94 in. in diameter at the front end, with tubes 24 ft. long. But even such boilers would be unable to supply steam economically to the monster cylinders of the engines without the assistance of the superheater. The year may be said to have witnessed the definite coming into its own of the superheater on the locomotive, after early efforts which had disastrous and apparently hopeless results. This final success has been due to a large extent to the work done in this country and to thorough tests of the apparatus, such as those published in 1912 by C. D. Young (*Jour. Franklin Inst.*, clxxviii, No. 1, July, 1914) from data obtained at the Altoona shops of the Pennsylvania Railroad. The largest superheater ever applied to a locomotive, with 53 elements and 1,584 sq. ft. of superheating surface, has been installed on the Centipede locomotive of the Erie Railroad.

The demand for greater safety of operation was nowhere reflected so clearly as in the field of car construction. The wooden passenger car is doomed. There are now in Congress seven bills requiring all-steel passenger equipment and differing only in the periods during which it is to be substituted for existing wooden cars. Meanwhile railroads are rapidly reducing the number of wooden cars, from 48,126 on Jan. 1, 1912, to 44,560 on Jan. 1, 1914, or by 3,566 cars in two years, and rapidly increasing the number of steel or steel-underframe cars. The number of steel cars has increased by 1,409 per cent. in the last five years, with 4,845 cars acquired or contracted for in 1913 alone.

The trend towards higher efficiency is also well exemplified in methods of handling special traffic, such as perishable goods. The period 1911 to 1913 has shown a surprisingly rapid adoption of novel features in refrigerator-car construction. The percent-

ages of refrigerator cars of different types in 1911, 1912, and 1913 were as follows:

	1911	1912	1913
Steel underframe.....	44.3	51.7	79.4
Friction draft gear	38.3	58.8	89.2
Spring draft gear.....	22.4	21.0	0.2
All wood construction...	29.7	3.2	0.2

The refrigerator car of to-day is an entirely new structure as compared with what it was only two years ago, a record especially worthy of notice in view of the fact that a refrigerator car combines all the difficulties of design of a stationary cold-storage plant with the special limitations imposed by being on wheels, and complicates the car part of the design by the presence of the added weight of insulation and the necessity of building a car that will withstand all the shocks and torsional stresses to which it is subjected in service, without opening up cracks in the superstructure and thus destroying the heat-insulating properties. The newer refrigerator cars are also made so that they may be converted into plain box cars and made available for the return journey for any freight.

Automobile Engineering.—A year ago it might have been questioned whether any radical changes in the construction of the modern automobile were likely for a long time to come. Most of the changes made during the year have been in the direction of more extensive adoption of such improvements as the self-starter, but there have been also developments of a more revolutionary nature. The Cadillac company is putting on the market a V-type eight-cylinder engined car. While such engines have been used in Europe (on the de Dion-Bouton cars), they are a decided novelty in this country, and are apt to lead to a wider adoption of this type of engine, both on account of its unquestionable advantages in extremely smooth running, and because of the natural tendency of a certain class of buyers of automobiles to insist on the latest developments in construction simply on account of their novelty.

That the present-day automobile has already become a piece of machinery of surprising reliability has been fully exhibited by the test of a Moline-Knight engine which ran at the Automobile Club of America, with all adjustment sealed, uninterruptedly for 337 hours, a feat showing not only the high efficiency of the modern machine shop, but the clear comprehension of the principles of gas-engine design already achieved by modern engineers. Without such a strong engineering foundation, the development of the cyclecar motor, the design of which has been justly called the post-graduate course in motor engineering, would have hardly been possible and certainly not as rapid. To build at a low price a small, efficient, reliable, simple and nearly fool-proof engine within the close range of space and weight available, has been by no means an easy task, but it has been successfully accomplished in this country in several clever and original types. One of the results of the advent of the cyclecar has been, among other things, the revival of the air-cooled motor, which was widely used in the early days of automobiling but gave way to the water-cooled motor when heavy and expensive cars made its advantages negligible as compared with certain deficiencies, which at that time were really due not to the use of air cooling but to faults in other parts of the motor. Now that low weight, small bores and six-cylinder motors have become common and valve design highly perfected, there would be nothing surprising in the use of air cooling extending from the field of cyclecar construction to that of large cars, where it might now produce a considerable saving in first cost and fuel consumption.

The year has also made more and more apparent the tendency to break away from the standard magneto equipment for ignition purposes. This is due partly to the fact that electric starting devices, with their batteries and generators, provide on the car a source of current which is a direct invitation to dispense with the additional weight and not inconsiderable cost of a magneto. In this country there are already several types of cars which use the same current for starting and for ignition, by including in the starting and lighting set some sort of spark coil, interrupter and

distributor. A device which may help the introduction of this method of ignition, recently placed on the American market, consists of individual converters attached to each spark plug. These converters are nothing but high-frequency Tesla resonators, about 1.5 in. in diameter and one inch long. A circuit-breaker and distributor are used, but as low tension is used in the distributor, storage-battery current is just as good as that from a magneto, while the fact that all the wires leading to the resonators at the plugs carry only very low voltages is an advantage not to be overlooked.

Among what may be termed future possibilities of automobiling may be mentioned the Shilowsky gyroscopic car, on two wheels like a bicycle, but with a gyroscope device to ensure stability. In tests recently made in London the car could remain standing for an indefinite period, took angles with ease, and could be handled in crowded streets without difficulty.

AUTOMOBILES

JOSEPH A. ANGLADA

The Automobile Industry.—Figures compiled from trade mediums indicate that the production of gasoline pleasure cars during the year ending Oct. 30, 1914, amounted to 650,000 cars. During the preceding 12 months the production was 571,900 cars. It is estimated that close to 800,000 cars will be produced during the year ending Oct. 30, 1915. During the 1913 period 169 manufacturers were engaged in the production of gasoline pleasure cars, during the 1914 period 161, a decrease of eight, while it is estimated that during the 1915 period there should be about 175. Manufacturers of gasoline commercial cars dropped from 214 in 1913 to 210 in 1914, but a number of new makers have entered this field during the past few months, so that the number has increased to 245 for 1915.

Gasoline Pleasure Cars.—The general trend of prices of gasoline pleasure cars is downward; they vary from $5,000, with a limited number above this amount, down to $300 for a diminutive two-passenger car and $175 for a single-passenger child's automobile. The number of automobiles sold for less than $500 has increased from 750 in 1913 to 18,300 in 1914, with a probable increase to 330,000 in 1915 due to the largest maker of machines selling for slightly over $500 having reduced the price to slightly over $400. The number of six-cylinder cars manufactured, which was in 1913 about 12 per cent. of the total number of cars manufactured, increased in 1914 to nearly 13 per cent. of the total. It is estimated that this percentage will be close to 18 for 1915, indicating that the public want six-cylinder cars even at higher prices than for four-cylinder cars having the same power. In this connection it is interesting to note that one prominent maker having a large output, will build only eight-cylinder cars during 1915 (see *Mechanical Engineering, supra.*)

Cyclecars.—This type of car, designed generally to sell for less than $400, promised at the beginning of the year to be an important factor in the industry, but due to defective design and an endeavor to build too cheaply, the public has not purchased many of the cars offered and the manufacturers who have remained in business have turned their attention to producing small cars, light in weight and embracing the general construction of the larger cars.

Gasoline Commercial Vehicles.—The older manufacturers have added one or more smaller models to their line of gasoline commercial vehicles, and while some of the manufacturers of larger sizes have ceased manufacturing, new makers have entered the field with vehicles of small capacity. Probably the most important development in this line has been the manufacture of vehicles having a load capacity of 1,000 lb. and selling for about $650. The use of all steel bodies has increased, likewise the use of worm-drive rear axles instead of chain-drive axles for three- and five-ton trucks.

Fire Trucks.—The manufacture of motor-propelled fire-fighting apparatus has been steadily advancing. There has been a slight increase in the number of manufacturers of this class of

machines, while the number of manufacturers of tractors adapted to replace horses on existing fire apparatus has increased from two to seven.

Electric Pleasure Automobiles.—The tendency during the year has been to make electric pleasure vehicles noiseless in operation and more luxurious in interior finish as well as more roomy. There have been some attempts to build electric vehicles which would sell at the popular prices charged for the small gasoline-engine cars, but because of the high cost of a suitable storage battery, these ventures have not been successful.

Electric Commercial Automobiles.—The manufacturers of this type of vehicle have appreciated the advantages of coöperation to the extent of educating the electric light companies to appreciate that the charging of electric commercial vehicles can be made a profitable part of their business. The result has been an increase in the number of these vehicles sold in fields where their use is more profitable than the use of gasoline vehicles.

Steam Pleasure Automobiles.—In certain sections of the country, particularly New England, this type remains popular. The perfection of automatic means of controlling the steam boilers used, has simplified their operation and has made their use safer.

Steam Commercial Automobiles.—The limited number of machines of this type built serves to show that the gasoline and electric commercial vehicles satisfactorily meet most requirements of the uses of commercial automobiles.

Design.—The use of electric starting motors and electric lights on cars selling for about $750 and over, is almost universal practice. The use of compressed air for starting purposes and of acetylene gas for lighting has been practically abandoned in favor of the electric system. The tendency in body design has been toward "streamline" effects, where the motor hood, dash and body join in easy curves instead of sharp depressions and angles. The use of wire wheels has increased slightly, due to the lighter and more "sporty" appearance given to the vehicles. The greater difficulty of keeping them sightly, and the difficulty of carrying two complete spare wheels with tires inflated ready for use count in their disfavor from the manufacturer's standpoint as compared to wood wheels fitted with demountable rims.

Fuels.—During the year there have been at least ten carburetors adapted to the use of kerosene placed on the market. In addition there have been at least three so-called kerosene vaporizers, and for a short period it appeared that the use of kerosene as a fuel for automobile engines might be realized. Experiences in the hands of users of these various devices prove that none of those tried were entirely satisfactory, the chief difficulties met with being difficulty in starting, the deposition of an excessive amount of carbon in the engine cylinders and the inability to run the motor at different rates of speed.

The incentive to use kerosene as a fuel came from a threatened increase of the price of gasoline, but during the past six months the price of gasoline has decreased to the figures extant about four years ago, viz., 12 to 18 cents per gallon. The quality of the gasoline, that is its ability to vaporize readily, is not as good as that of the gasoline formerly purchased at this price. The increase in the quantity of available gasoline and the lowering in price are due to improvements in the art of refining; the ability of the motor-car engine to use a slightly lower grade of fuel is due to the improvements made in the carburetors. The price of gasoline has been affected also by the use of a fuel known as "motor spirit," produced by some of the large refiners from natural gas (*A. Y. B.*, 1913, p. 591, 600, 663).

Abroad, especially in England and Germany, where the price of gasoline averages about twice the American price, the use of mixtures of denatured alcohol and benzol has been popular. Tests made in England of a mixture of one-third benzol and two-thirds denatured alcohol have proven entirely satisfactory from the standpoint of power developed by the motor, the running of the motor at various speeds, and the cost of fuel per horse power per hour.

The laboratory of the Automobile Club of France has undertaken the experiment of developing an engine to use denatured alcohol as a fuel, the

incentive being that denatured alcohol can be produced in unlimited quantities where the sun shines and the rain falls. The experiments conducted by the U. S. Department of the Interior have shown that it is possible to operate an engine satisfactorily on denatured alcohol provided the compression is increased to about 180 lb. per sq. in. and provision is made for heating the alcohol carburetor. Such an engine will deliver from 20 to 30 per cent. more power than a gasoline engine of the same dimensions and use but slightly more fuel per horse power per hour. (See "Comparative Fuel Values of Gasoline and Denatured Alcohol, in Internal-Combustion Engines," Department of the Interior, Bull. 43.)

AERONAUTICS

HOWARD HUNTINGTON

General Survey of Progress.—Development in the field of aeronautics during the last twelve months has continued with consistent success. Few radical departures from standard practice are recorded in the design and construction of aeronautical machines. In the uses to which air craft has been put, however, progress has been both startling and spectacular. Achievement has rested almost entirely on the other side of the ocean. The United States, which eleven years ago gave to the world the invention of the successful aeroplane and in 1909 won the primacy of the world in duration and speed, has been lagging behind more and more, until now seven or eight countries are ahead, not merely in the number of machines and pilots but in the holding of records and in the design and construction of the machines. Two reasons are apparent which explain this disparity between our former and present positions in the art and science of aviation. In European countries the military has been very active in the development of the aeroplane. The United States is not a military nation, and our Government has been slow to encourage constructors with orders. As aviation has not yet developed along commercial lines, this military situation has been a controlling factor in bringing about European leadership in the air. The second explanation for tardy progress in America is found in the Wright patent situation. Aviation as a sport has been taken up to a greater extent here than abroad, and it is this phase of development which promised in 1913 to rehabilitate American aviation. There were over 40 interested sportsmen who would have become converts to this new sport in 1914, if it had not been for the unsettled condition of the patent situation. This condition of affairs, however, will not long endure, if efforts now being made to bring about an arrangement between Mr. Wright and the industry, mutually beneficial, are of any avail. The future of air craft in the United States depends largely upon its development in the fields of sport and commerce.

Aeroplanes.—The development in this branch of aeronautics has been in refinement of detail rather than in any change in type. If there has been any trend from one type to another, it has been in favor of the biplane over the monoplane. Indeed, the tractor biplane has risen to first place in the esteem of military authorities. For long-distance cross-country flying, this type has proved itself superior to the monoplane, as it will carry a heavier load of fuel with the same span of wing (having two supporting surfaces instead of one), and because it is capable of a greater slowing down in speed without descent, making possible a slower and safer landing speed.

The monoplane has always been a tractor machine, but the biplane has only in the last year or two developed into a tractor. By enclosing the power plant, the pilot and passengers in a stream-line fuselage and by reducing the number of struts between the planes, the biplane has been brought to a high state of refinement and its speed is now greater than that of the monoplane of equal power. A neat arrangement in the modern tractor biplane evolved in Great Britain during the year, is the setting of the upper and lower planes at different angles. By placing the upper surface at five

degrees angle of incidence to the line of flight, and the lower plane at three degrees, it is found that the machine, when tilted for the getaway, lifts well on both planes, and when in full flight with tail high, the lower plane cuts through the air edgewise with little resistance, and the machine practically becomes a monoplane. By this design great range of speed is gained, the Sopwith machine in England and the Curtiss machine in this country having attained a range of very close to 40 to 90 miles per hour, carrying pilot, passenger, and fuel for four hours. The Sopwith biplane, fitted with pontoons and powered with a 100 h. p. Gnome motor, won the annual competition for the Jacques Schneider Maritime Aviation Trophy at Monaco against a field including several monoplanes equipped with double the power. It is this great range of speed which is the most important development of the year in aeroplanes, for, granted that speed of travel is of prime importance, it is also essential to slow down the aeroplane for a safe landing. On any but the smoothest fields a landing at a speed of over 50 miles an hour is highly dangerous, and a machine capable of sustaining itself at a slower speed will have the added advantage of coming to a stop in a much shorter distance after alighting. This range of speed means quicker getaway and more accurate landings, which in turn obviate the old necessity for large and specially prepared aviation fields.

The wing curve has passed through further development and it is now practicable to sustain weights upward of ten pounds per square foot of surface without the necessity of extreme speed. The latest wing design has been clearly influenced by the stream-line idea, which is everywhere asserting itself. In fact, the cutting down of head resistance is now conceded to be of the greatest importance in increasing the efficiency of the aeroplane. To this end also the struts and the running gear have undergone some alteration. In the Eiffel Laboratory, in France, it has been found that, with the increase of size, the strength of a strut of stream-line formation increases more rapidly than the head resistance. The tendency is, therefore, toward larger and fewer exposed members.

Stability.—In the matter of stability, an interesting development has taken place during the year in this country. The Dunne aeroplane (*A. Y. B.*, 1913, p. 603), invented in Great Britain several years ago but never highly developed, has been taken up and developed along slightly different lines by the Burgess Company in Massachusetts. The result has been gratifying in two ways: inherent stability has been manifestly proved, and efficiency has been maintained. Unlike the results obtained in Europe, stability has been gained without the sacrifice of ease of control in landing, and a speed range has been found which compares favorably with the more standard machines. The pilot of the Burgess-Dunne finds it entirely possible to drive without thought of balance either longitudinal or lateral, and as in an automobile, his only care is to steer his course. This applies even in winds with a velocity of 40 miles per hour.

Another means of stabilizing air craft is found in an American invention, the Sperry stabilizer. This is a mechanical device which acts, in the case of an otherwise normal aeroplane, as an automaton correcting any deviation from an even keel by the changing of the angle of incidence in ailerons placed near the wing tips. The controlling factor in this device is a system of gyroscopes which work the ailerons through electrical control. A Curtiss flying boat equipped with this stabilizer was entered in the French competition (Union pour la Stabilitie en Aeroplan) held during the summer near Paris, and won the first prize of $10,000 against a large field of European aspirants.

There are many workers in both schools of stability, inherent and mechanical. Inherent stability bids fair to be all sufficient when in full flight, but in flying low for a landing, the rolling of the inherently stable type becomes an element of danger, except in calm weather, and manual control of the balance seems necessary. Hence it would seem probable that a combination of inherent and mechanical stability will be developed in the near future.

Hydroaeroplanes.—During 1914 very little change has taken place in the design of the hydroaeroplane. In construction, however, improvement is evident in the more sturdy construction of the pontoons, which are of necessity subject to rough usage even in smooth water. Further advance in this type of machine is similar to that which applies to the aeroplane, viz., refinement of detail and increase of efficiency. It is interesting to note that the development of the hydroaeroplane has proceeded along different lines in Europe. There the double pontoon or catamaran arrangement has been universally adopted, while in this country the constructors hold to the single pontoon with balancing floats at or near the wing tips.

Flying Boats.—Like the hydroaeroplane the flying boat is designed to arise from and alight upon the water, but instead of having watertight pontoons beneath the planes, the flying boat carries its passengers in a hull which resembles a high-speed motor boat. This type of air craft is a later development than, and indeed quite distinct from, the hydroaeroplane, each being developed from a different standpoint. The earlier water flier is an aeroplane with floats placed under it; the later type is a boat with wings attached.

The developments of the year in this type have been primarily in the line of efficiency in respect to hull design. The earlier flat-bottom hulls had the disadvantage of "spanking" the waves when at high speed, imparting a series of severe jars to the whole structure. The V-type bottom of 1913 was better in that it broke the impact upon landing and upon striking through the waves, but had the very decided disadvantage of throwing a heavy spray high over the lower planes, and under certain conditions, of interfering seriously with the rapidly revolving propeller. The hulls brought out during the summer of 1914 are V'd up from the central keel for a little over half the distance to the edges of the bottom, where the planking is curved slightly down, the effect being to throw the spray downward, which, of course, makes also for efficiency in the lift.

The flying boat is more perfectly adapted than any other type of flying craft for sporting purposes. During the summer a dozen of these craft, in the hands of as many amateur sportsmen, have proved to be very satisfactory pleasure vehicles. They aggregated over 250,000 miles of flying without an injury to pilot or passenger. When used merely as a motor boat on the surface of the water, this type of machine is most interesting to operate. Capable of speeds upward of 60 miles an hour, the pilot of a flying boat can maneuver around the highest speed motor boats, and may turn sharp corners without danger of a roll over, owing to the slanting balancing floats at the wing tips. In short, the flying boat is the most flexible craft in the handling and the safest flying machine so far developed. The latest flying boats, fitted with enclosed cabin, carrying from two to seven passengers, fitted with luxurious upholstery and marine instruments, present the appearance of highly comfortable and highly developed pleasure craft. In 1915 we may look to this type, in combination with developments in inherent and automatic stability, for the introduction and extended use of the flying machine among amateur sportsmen.

Dirigible Balloons.—Several types of dirigible balloon have been evolved in Europe, but owing to the military value of these craft, little is known of the more recent progress in their design and construction. Germany leads every other nation in this development. France has held to the non-rigid type of dirigible, Italy and Austria have done much in the development of the semi-rigid balloon, but Germany, with her Zeppelin and Parseval, leads the way in both the rigid and non-rigid class.

The tendency in the non-rigid development has been to increase the length of the car carried beneath the balloon, thus bringing about a better distribution of the weight, the cars being of a rigid-frame construction. In Austria and Great Britain the non-rigid balloons have been modified by the construction of a rigid frame at the front end of the envelope, thus permitting higher speed without the deformation of the forward end by the pressure of air at that point. The

French and Italian constructors and one Austrian concern have sought to combine the advantages of the non-rigid and rigid types by the introduction of a rigid keel designed to fit the bottom of the envelope and to preclude the possibility of buckling when the structure is subjected to unusual strains.

Unquestionably the highest development in lighter-than-air machines is found in the German Zeppelins. Here we find luxuriously equipped cars extending along for several hundred feet beneath the superstructure of aluminium and steel, inside of which is contained a series of ten to 18 separate gas bags, any three or six of which may be deflated without causing the craft to descend. Stairs have been placed between the gas compartments from the cabin to a platform on top of the structure, enabling observation and firing from above as well as from below. The size of these machines has increased steadily during the year until now 30 persons are quite commonly carried and the duration of flight has attained to the startling figure of 35 hours.

Spherical Balloons.—The art of ballooning maintains itself in spite of the increased interest in motored craft. It is interesting to note that while in Europe this sport has been losing popularity, it has been gaining in this country a stronger foothold, and several events and individual ascents were made during the summer of 1914. On June 11 four balloons rose from Portland, Ore., in a competition in connection with the Rose Festival celebration. On July 11 at St. Louis, Mo., eight balloons rose in competition for places in the national team to represent the United States in the International Balloon Race which was to have taken place, with six countries competing, from Kansas City on Oct. 6, but which was indefinitely postponed on account of the disturbed conditions in most of the countries entering. A most interesting event, in which eight sportsmen in four balloons participated, occurred on Oct. 8 from Pittsfield, Mass. This event was a novel one by virtue of the combining of ballooning and automobiling, being indeed a chase by balloons and automobiles of the balloon first released, which was to land after a flight of fixed duration.

Aeronautical Motors. — The tendency in general aviation has been and is now to build machines of higher and higher power. The early flights were made with 20 and 30 h. p. engines. In the 1910 international aviation meet at Belmont Park, Long Island, the power had increased to 60 and 70 h. p. The last Gordon Bennett Cup race held in France was won by a machine of small proportions equipped with a motor of over 200 h. p. There are two reasons for this steady increase in power, the desire for higher speed and the demand for greater carrying capacity.

Three general types of motors are in use to-day. The greatest contribution of France to aviation development has been the revolving-type engine. As exemplifying the highest success in this type we turn naturally to the Gnome motor. This design, however, is not of French origin, but is an adaptation, in the hands of skilled French mechanics, of a well conceived but poorly constructed American engine, the Adams-Farwell; also before the advent of the Gnome engine credit must be given to the Langley radial motor as used in the Langley "aerodrome." The development of the year in the revolving motor has consisted not merely in a refinement of detail but in an improvement in the intake mechanism as well. The Gnome of a year ago received the gas into a crank case and thence through the piston head to the combustion chamber by means of a poppet valve. Profiting by the example of another French engine which adopted a mechanical intake valve in the cylinder head, the Gnome engine has been redesigned to admit the gas through a system of ports opened and closed by the travel of the piston, thus doing away with the inefficient and poorly placed automatic poppet valve. An American motor of the revolving type which has met with considerable success has been improved by the adoption of a cleverly designed slide sleeve valve. This design admits the gas in a very rich mixture to the cylinder, there to mix with the proper proportion of air, and this is accomplished without leading the gas

through long conduits and admitting it against the effect of centrifugal force due to the rotation of the cylinders. This American example of the revolving-type engine runs at a lower temperature, uses less lubricating oil and less gasoline, and produces more power for the same cylinder capacity, than the more widely known French engines.

The upright automobile-type aviation motor, which has attained such signal success in Germany, is a much heavier engine per horse power than the rotating type. The German designers have consistently adhered to the water-cooled upright engine and the development of the year has been entirely in the line of refinement of detail. While this type of motor is heavier in construction than the rotating type, the consumption of fuel is very much less per horse-power hour. For all long-distance flying it is found that the weight of the power plant, fuel taken into account, works out to a lower figure in the case of the water-cooled heavier engine than with the air-cooled rotating engine requiring a much larger supply of gasoline and oil.

The V-type aviation motor, which is linked inseparably with the early work of Glenn H. Curtiss and which has been taken up by three or four concerns in this country and in England, has proved to be a very successful type for all heavy work in aviation. While heavier than the rotating type it is lighter than, and as economical of fuel as, the six-cylinder vertical type. It has the advantage of a greater number of cylinders without any increase in the length of crank case. Likewise the crank shaft is but half as long as for the same number of cylinders in a vertical motor, thus transmitting the power through but half as many crank arms and bearings in the shaft.

Each of these three types of aviation motor has a distinct field of its own. The upright automobile-type engine will always find a market in sizes up to 150 or 200 h. p. Its simplicity makes for dependability, and in applications where no fuselage breaks its hole of passage in the air, it will be a favorite on account of its narrow aspect and small head resistance. The revolving air-cooled type finds a ready market in aeroplanes of the runabout class, where light weight of engine is of first importance, which is usually the case where short radius of action is sufficient. The V-type engine will have the field in the larger machines where great radius of action is required, because the revolving-type motor necessitates the carrying of a comparatively greater weight of fuel and lubricant per ton-mile and the upright automobile-type engine will not be built in large enough units. The upright motor, now produced almost exclusively in six-cylinder units, cannot be built in sizes upward of 150 to 200 h. p., without an increase in the bore and stroke or the addition of more cylinders, neither of which expedients has been found to be practicable. In large machines designed for long cross-country work, the V-type will be actually lighter per horse power, fuel taken into account, than the revolving power plant. For any flight of over six-hours' duration, the heavier V-type water-cooled engine will make the lightest power plant. As a matter of prophecy for 1915, we may logically expect the development of the V-type engine in larger sizes, 12-cylinder units of 200 to 250 h. p., with two inlet and two exhaust valves in each cylinder head, two magnetos, complete double ignition, two oil pumps, and, in short, everything in duplicate.

Accessories.—Many of the accessories pertaining to the aeroplane and aviation in general are the same as those in demand for the automobile. But many new devices have come into being through special demands arising from the use of air craft. As a matter of interest the following accessories may be mentioned, out of a very long list, which are made up especially for the aviator: the aviophone, designed by the inventor of the dictograph, to enable the pilot and passenger to converse in the wake of an unmuffled motor; the aviator radio set, by which wireless communication is established between flying air craft and land stations; the aeronautic barograph, designed especially for recording high altitudes and the time consumed in attaining them; the electric and mechanical tachometers, to show the aviator at all times during

flight the speed of the motor in revolutions per minute; the inclinometer, to reveal the angle from the horizontal at which the machine is flying; the air-pressure speedometer, to indicate the speed of the aeroplane relative to the air in which it is traveling; the engine enunciator, an ingenious device placed upon the dash, to indicate any miss-firing, showing in what cylinder it takes place, to indicate whether the trouble lies in the spark plug, in the compression, or in the carburetion; and the safety harness designed to prevent the pilot or passengers from being thrown out of a machine by a sudden lurch and at the same time leaving the occupant free to disentangle himself at a moment's notice by the pull of a single clasp. Hundreds of American safety harnesses, aviophones, speed indicators, tachometers, etc., are being shipped from this country to the warring nations of Europe, and most of these devices have been evolved during 1914.

Military Aeronautics.—While the aeroplane and the dirigible balloon are destined to be great factors in the bringing about of international peace and the cementing of all peoples into closer relationship, it is nevertheless true that air craft are potent factors also in war. As an engine of destruction the aeroplane is discounted not only by the public but by the military authorities. In the great war now in progress in Europe the dropping of bombs has succeeded chiefly in the ruthless murder of a handful of noncombatants. It is not probable that the art of bomb dropping will ever advance to that stage where an objective can be sought out and destroyed with any degree of efficiency. In the European War the effect of bomb-dropping raids has been in no way decisive in influencing surrender or retreat; it has simply caused a moral effect. Instead of inspiring fear in the camp or even in the cities away from the line of battle, it has instilled a hatred and a determination in the heart of the enemy.

But relatively little of this barbaric warfare has been resorted to. The real value of air craft in the present war has proved to be in the fields of reconnaissance and range finding. Sir John French, commanding the British forces at the front, has paid a high tribute to the service rendered by the Royal Flying Corps in an official report to the British War Office. Thirty-six overland flying machines of the Royal Flying Corps rose together in England, crossed the English Channel *en masse*, and arrived at a prepared camp in Belgium without a single mishap. It is remarkable that in all the daily flying which has been done by air scouts and range finders, there have been less than half a dozen accidents reported which can be classed as purely aviation accidents. Furthermore, the mortality among the aviators at the front has been strikingly low in comparison with the figures pertaining to the fighting ranks on the ground. This is in large measure due to the fact that the aviators are almost entirely out of range of the enemy's guns. At the same time the service rendered is far more comprehensive and accurate than any which could be obtained by the now obsolete cavalry scouts. Strategy in campaign still exists, but strategy in battle is no longer possible. It is impossible to effect feints or flank movements to surprise the enemy as each side is continually cognizant of the other's movements. The terrible massacres in ambuscades of former wars have been made impossible.

France is undoubtedly first among the nations at war in aerial strength, possessing at the opening of hostilities in the neighborhood of 1,200 airworthy craft and more than two dozen serviceable dirigibles with an abundance of pilots to man them. Germany in actual numbers of machines possessed is in the lead, having in service nearly 1,500 aeroplanes and in the neighborhood of 50 dirigible balloons. But owing to the slower speed and much slower climbing ability of the German aeroplanes, their efficiency must be discounted to a great extent. In nearly all the reports of aerial encounters, the German pilots have fared the worse, owing to the greater facility with which the French pilots could maneuver their fast and lighter machines. It is interesting also to note that the encampment of troops at short distances behind the firing lines whence they may be

brought up fresh at short notice is no longer possible; it was learned in the early stages of the war that as soon as an aeroplane of the enemy passed over such encampment the place was made untenable by the enemy's artillery, directed by signal from even a single aeroplane. Thus it will be seen that range findings and reconnaissance have been revolutionized in the present war by the advent of the aeroplane.

The efficiency of the dirigible has yet to be proved. A few aerial raids have been made by German Parseval and Zeppelin airships, but they have done more harm than good to the German cause. It is believed possible by aviation authorities in this country that, given a sufficient number of dirigibles massed in one fleet, a great raid could be effected against London or Paris and much material damage done, provided a quiet and moderately foggy night abetted their purpose. Under such conditions searchlights could penetrate but a few hundred feet into the air and the presence of hostile air craft would be unknown until the incendiary bombs had done their work. But terrible as the result might be, it is not believed that any considerable military gain could be achieved or a change of campaign forced. In the other fields of war service, scouting and range finding, the dirigible is of little value; it cannot attain as high altitudes as the aeroplane, presents a much larger target for the enemy's fire, and when hit the result is likely to be much more disastrous owing to the inflammable nature of the sustaining gas.

In the United States, military aircraft development has been slow as in former years. A number of military aviators and officers of authority in the Signal Corps aeronautic service have been in Europe during the past few months, and being permitted to go through the lines to the front, have obtained much valuable information in regard to the service rendered by the foreign aviation corps. As a result it is believed by the military authorities at Washington that a large appropriation will be made in the next Congress for the increase of aviation equipment and also that a limited number of dirigibles will be acquired by our Government. Capt. Mark L. Bristol, in charge of aeronautics, U. S. Navy, has written to the various constructors who have shown any interest at all in dirigible development that there is under consideration the purchase of two or more dirigibles for the Navy. He states that it is the plan of the Navy to start with small dirigibles of about 75,000 cu. ft. in order that a corps of dirigible experts may be trained to handle these lighter-than-air craft, with which we have no experience as yet in this country. For regular service in war, larger sized ships will be required.

In the annual report of the Chief Signal Officer, U. S. Army, to the Secretary of War for the fiscal year ending June 30th, 1914, bearing date of Oct. 3, 1914, Major Scriven gives first place among "several important matters" to the creation of an Aviation Section of the Signal Corps by Act of Congress of July 18 (see XII, *The Army*).

> The importance of this measure, the effect of which is to create a flying corps for the Army, cannot be exaggerated, for existing conditions show that whatever may be the conclusions drawn as to the use of air craft for offensive purposes in warfare, and as to the importance of the dirigible, there can be no doubt of the value of the aeroplane in rapid and long-range reconnaissance work, and of its power to secure, and to transmit by radio, visual signals or direct flight, information of importance to armies in the field. So true is this that it seems probable that the aeroplane, and, to some smaller degree, all air craft, have altered, not the principles of strategy, which are immutable, but the theory and application of grand tactics. It now appears that the actual game of war is played openly with cards laid upon the table, and opportunity no longer is given for inference as to concealed movements or for surprise, perhaps not even for the exercise of the high military quality of anticipation of the unforeseen movements of the adversary. It is now recognized that the possibility of brilliant and unexpected blows and surprises by enterprising commanders has been largely eliminated from modern operations of war by the information supplied by aviators.

In the various belligerent countries there are between four and five thousand aeroplanes in flying condition today. The military value of these machines when in service of organized

aviation corps can be summed up in the two following statements, quoted from *Flying*, the official organ of The Aero Club of America:

M. Jacques Mortane, the French authority on military aeronautics, who is at the very headquarters of the French forces, writes: "The aeroplanes are invaluable. We shudder at the thought of our helplessness without them and wish we had thousands more so we could supply every arm with them. The batteries that use aerial eyes extensively give brilliant accounts of themselves; those who have not are sorely handicapped. This statement is confirmed by other reports from French, British and German sources."

On Sept. 14 came the first official recognition of the splendid work of the British fliers. Field Marshal Sir John French, in his report from the front, contained in a statement made public by the War Office at London, expresses his praises of the good work of the aviators as follows: "One of the features of the campaign on our side has been the success of the Royal Flying Corps. In regard to the collection of information it is impossible either to award too much praise to our aviators for the way they have carried out their duties or to overestimate the value of the intelligence collected, more especially during the recent advance. In due course certain examples of what has been effected may be specified and the far-reaching nature of the results fully explained, but that time has not arrived. That the services of our Flying Corps, which has really been on trial, are fully appreciated by our Allies, is shown by the following message from the Commander in Chief of the French Armies, received Sept. 9 by Field Marshal Lord Kitchener: 'Please express most particularly to Marshal French my thanks for the services rendered on every day by the English Flying Corps. The precision, exactitude, and regularity of the news brought in by its members are evidence of their perfect organization and also of the perfect training of the pilots and observers.' To give a rough idea of the amount of work carried out it is sufficient to mention that during a period of 20 days, up to the 10th of September, a daily average of more than nine reconnaissance flights of over one hundred miles each has been successfully maintained. . . ."

Noteworthy Flights.—The rapidity of progress in the art of aviation is wonderful to relate and hard to realize. In 1908 Wilbur Wright was heralded the world over for a flight of two-minutes' duration. To-day we believe that had it not been for the war the Atlantic Ocean would have been crossed by aeroplane, and America and Europe have been brought, not twice as near, nor three times as near as at present, but within one day of each other instead of six. The Curtiss flying boat "America," built for Rodman Wanamaker, after passing through several stages of change and development succeeded in lifting a load of fuel sufficient for the crossing of the Atlantic. A carefully laid out expedition had been perfected in every detail, and but for the war, Lieutenant Porte and George Hallett were to have set out from Newfoundland in October.

One of the most noteworthy flights during the year 1914 occurred on Feb. 11, when the French pilot Agenor Parmelin flew from Geneva, Switzerland, over Mont Blanc in France, attaining an altitude of over 16,000 feet. This feat was rivaled in this country by Silas Christofferson, who flew on June 25 over the peak of Mount Whitney in California. This mountain is 14,898 ft. high and Christofferson attained an altitude of 15,728 ft., about a thousand feet above the peak.

The French pilot Garaix, in a Schmitt biplane, made a world's record for "four up" when he flew with three passengers besides himself on July 2, for four hours, three minutes, and 29 seconds.

The London-Manchester-London and London-Paris-London races were the most spectacular of the events held during the year and the results are most significant. W. L. Brock, the American aviator, who a month before won the British Aerial Derby flight around London, won the race to Manchester and return, receiving the gold cup presented by the London *Daily Mail* and a money prize of $2,000 offered by the Anglo-American Oil Co. Brock covered the double journey of 322 miles in the actual flying time of 4 h. 42 m. 26 s., an average of approximately 69 miles per hour. This race took place in June. On July 11, also from London, the race to Paris and return was held, and Brock was again the winner against a field of seven competitors. The time for the 508 miles was 6 h. 59 m. The fastest

service by train and boat between London and Paris requires 6 h. 45 m. for one way, which is but 14 minutes less than Brock required for the round trip.

On Oct. 17 W. C. Robinson of Grinnell, Iowa, in a monoplane built by himself, broke the American cross-country distance record for aviator alone by flying from Des Moines, Iowa, to Kentland, Ind. The distance credited to Robinson by the contest committee of the Aero Club of America, computed in collaboration with officials of the War Department, is 332 miles.

The American altitude record for aviator alone has been broken three times during 1914: first, by Theodore C. Macaulay, who on Feb. 25 climbed to a height of 12,139 ft.; second, by De Lloyd Thompson, who on Aug. 6 attained an altitude of 15,256 ft. in the astonishing time of only 44 minutes; and third, by Capt. Le Roy Miller, U. S. Army, who on Oct. 8, at San Diego, Cal., reached a height of 16,794 ft.

Aeroplane Records.—World's records, aviator alone, as they stand today, are as follows:

Speed.—Closed circuit without alighting, M. Prevost, France, Sept. 29, 1913: 126.66 miles per hour.

Distance. — Closed circuit without alighting, A. Seguin, France, Oct. 13, 1913: 634.54 miles.

Duration. — Without alighting, R. Boehm, Germany, July 10-11, 1914: 24 h. 12 m.

Altitude.—Above starting point, H. Oelrich, Germany, July 14, 1914: 26,246 ft.

In the record of Reinhold Boehm, noted above, no official record of the distance covered was kept, but it is estimated conservatively that in the 24 hours 12 minutes of flight this German aviator traveled approximately 1,180 miles.

In the matter of weight carrying, Russia and the United States are in the lead. The Sikorsky machine has successfully maneuvered with 17 passengers for over half an hour in the air. Although the passengers carried during the trials of the "America" at Hammondsport, N. Y., during August, 1914, were only 12 in number, the actual weight of the machine (greater on account of the boat feature which the Sikorsky machine did not possess) and passengers exceeded by nearly five hundred pounds the weight lifted by the Russian machine. Thus it is seen that in the matter of weight carrying by air craft the United States is in the lead.

Aviation, availing itself of that highway which leads to anywhere and everywhere, is destined to become a new means of transportation, breaking down the barriers of nations, making every city a port of entry, bringing all peoples and races into closer relations with each other, and the aeroplane will prove to be a greater factor in the bringing about of international world-wide peace than it is now a factor in war. May the people of the United States be awake to the situation, and support aviation as a new and deserving cause, realizing that the aeroplane is an American invention worthy of American development, to that point where every record and excelling achievement shall stand to the credit of American genius.

PHYSICAL PROPERTIES OF METALS AND ALLOYS

William Campbell

Structure of Metals.—According to Quincke's "foam-cell" hypothesis, the process of crystallization begins with the separation of the liquid into two immiscible liquid phases. The one, which is present in relatively small amounts, so arranges itself as to form the walls of "foam-cells" filled with the liquid present in greater quantity after the manner frequently seen in immiscible oils and aqueous solutions. These "foam-cells" according to their form and size determine the arrangement of the crystalline particles when actual solidification takes place. (*Int. Zeitsch. für Metallographie*, iv, 23, 79, 303.) Desch summarizes our knowledge of the "Solidification of Metals from the Liquid State" (*Jour. Inst. of Metals*, xi. 57), and his bibliography includes all the important publications on the subject.

The mechanism of intercrystalline cohesion in metals is of great inter-

est. Rosenhain and Ewen have brought forward the "amorphous-cement" theory, which states that the crystals of metals are cemented together by an extremely thin layer of non-crystalline material which has distinct physical properties (*ibid.*, viii, and x, 119). The amorphous state of metals and its bearing on the behavior of metals when strained are ably reviewed by Rosenhain (*Engineering*, xcvi, 509, 537; see also *Int. Zeitschr. für Metallographie*, v, 65).

Heat Treatment.—The change in properties and structure of cold-worked metals is of more than usual interest. Iron has been studied by Sauveur, copper by Baucke, copper and brass by Grard (*Bull. Int. Assoc. for Testing Materials*, ii, no. 11). The annealing of gold has been studied by Rose of the Royal Mint, London. The hardness of gold and of gold containing small amounts of impurities was measured by the scleroscope and by Ludwik's cone tests, after annealing at temperature up to 500° C. Pure gold begins to lose its hardness on annealing above 100° C., but the presence of impurities raises that temperature, in some cases to nearly 400° C. (*Jour. Inst. of Metals*, x, 150).

Hanroit and Lahure have annealed cold-rolled silver and find that softening begins after four hours at 100° C. The hardest metal begins to soften at the lowest temperature and softens so rapidly that it becomes softer than the metal which was originally less hard worked, for the same temperature. Zinc and aluminium give similar results. (*Comptes Rendus*, clviii, 263.) They have made a comparison between silver and brass hardened by different degrees of cold work up to a maximum and then softened by annealing. The superiority of the metals which have been partly annealed after cold-working is pointed out. (*Ibid.*, 404.)

A very careful paper by Chappell on the recrystallization of deformed iron (*Jour. Iron and Steel Inst.*, 1914, i, 460) shows that all plastic strain produces recrystallization in iron on annealing below A_3. This is refinement followed by growth. The extent of refinement is proportional to the degree of deformation. The temperature of recrystallization becomes lower with increase in deformation. The annealing of hard-drawn copper wire and its effect on the physical properties and microstructure have been determined by Bardwell (*Bull. Am. Inst. Min. Eng.*, 1914, 2075), who finds that the tensile strength falls from about 65,000 lb. hard-drawn to 60,000 lb., annealed at 625° F., with a sudden drop to about 37,000 lb. annealed at 700° F., practically the minimum strength. The elongation shows a similar change, jumping from about two per cent. at 625° F. to over 40 per cent. at 800° F. The conductivity curves closely resemble those of elongation.

Tungsten.—The use of tungsten in lamps and for electrical heating is now well established. The preparation of the metal in the ductile condition is of comparatively recent date. Müller reviews the methods used to obtain filaments, first that of deposition on a carbon filament, then the squirting of the metal in the pasty form, and lastly the mechanical method, whereby the metal powder is sintered in hydrogen into a rod, which is then worked very hot until it can be drawn (hot) through diamond dies, according to Coolidge's patent (*Met. and Chem. Eng.*, xii, 108) into the finest wires. The heating in earlier stages (swaging) is done in an atmosphere of hydrogen. (*Zeitschr. für angewandte Chemie*, xxvi, 404.)

Deoxidation of Copper.—Arsenical copper finds a fairly extensive use in Europe for locomotive firebox stays, etc. Johnson has shown a method of improving the quality of arsenical copper by the addition of ferro-silicon, which deoxidizes the metal and increases its toughness and its resistance to the influence of reducing gases at high temperatures (*Jour. Inst. of Metals*, x, 293).

The method of deoxidizing copper by boron suboxide and casting it is described by Thomas (*Metal Industry*, v, 101). One per cent. of the suboxide is added, but an excess is not injurious because it does not combine chemically with the copper. The tensile strength and elastic limit run 24,350 and 11,450 lb. per sq. in. with a reduction of area of 74½ per cent. The average electrical conductivity is 90 per cent.

Hüser found that of all deoxidizing

agents for copper, magnesium gave the best results, especially as regards electrical conductivity (*Met. and Chem. Eng.*, xi, 518).

Constitution and Properties of Alloys.—New editions of Law's *Alloys and their Industrial Application* and Gulliver's *Metallic Alloys, their Structure and Constitution* have appeared and give for the general reader a clear and concise account of the subject of metallography up to date. Guertler's volume on the constitution of the alloys of iron, especially the alloys of iron and carbon, will prove a mine of information to those interested in iron and steel.

While the constitution of the brasses and the bronzes is now well known, little work has been done on the copper-rich ternary alloys. Hoyt (*Jour. Inst. of Metals*, x, 235) has worked out this part of the system, and in addition, has modified the copper-tin diagram by finding a transformation in the solid alloys at 590° C., between 10 and 24 per cent. tin.

Muntz Metal.—An elaborate paper on the heat treatment of this metal was published by Bengough and Hudson (*Jour. Soc. of Chem. Ind.*, Jan. 31, 1908). A further paper by Stead and Stedman (*Jour. Inst. of Metals*, xi, 119) shows that it is dangerous to anneal between 750° C. and 800° C., because the *beta* crystals are liable to become enveloped into *alpha*, which means weakness. Heating to between 800 and 830° C. followed by quenching leaves the metal as homogeneous *beta*, with a tenacity of 29 tons per sq. in. and elongation of 25 per cent. in two inches. If air-cooled, the metal is almost as good as it was after annealing at 500° C. Heating for 48 hours at 860° C. caused an oxidation loss of only 0.8 per cent. compared with four per cent. in the case of copper.

Vanadium in Brass.—The usual structure of brasses containing between 50 and 60 per cent. copper is not greatly changed by the presence of small quantities of vanadium, according to Dunn and Hudson (*ibid.*, 151).

Bronze.—As a great deal of bronze is used at the temperature of high pressure steam, Dewrance (*ibid.*, 214) has examined the properties of two alloys, Cu 88, Sn 10, Zn 2 and Cu 87½, Sn 10, Zn 2, Pb ½, at temperatures from 300 to 700° F. The first alloy shows a marked falling off in tensile strength and elongation at 375° F., with a minimum at 400° F., while the alloy containing lead retained its strength up to 550° F., where it showed a maximum ductility.

Annealing.—The effect of annealing on the structure of alloys has been reviewed by Portevin (*Rev. de Metallurgie*, x, 677), who points out that the changes produced by annealing within a field of the equilibrium diagram may be brought about by several causes, such as (*a*) the removal of internal stresses and the return to a state of mechanical equilibrium, (*b*) the removal of phases not in equilibrium (solid solutions becoming homogeneous) and the return to a state of physico-chemical equilibrium, and (*c*) the return to a state of crystalline equilibrium, with a growth of grain and re-crystallization. When transition temperatures have been passed, annealing may produce unstable conditions as in quenching effects or modifications due to polymorphic transformations, etc. The final effect of annealing depends on time and temperature of annealing, as well as on the character of the alloy, presence of impurities, amount of work, and so forth.

It is well known that manganese steel when slowly cooled is brittle, but when quenched from about 1,050° C. it is very tough. Potter has studied the effects of annealing manganese steel (*Bull. Am. Inst. Min. Eng.*, 1914, 601) and finds that starting with the toughened steel, reheating to just over 300° C. causes a marked falling off in strength and ductility, almost to a minimum, and these properties are not regained until nearly 900° C. is reached before quenching. The microstructures show this is due to the precipitation and reabsorption of the carbide of iron and manganese.

Brittleness.—Guillet and Bernard have carried out some very interesting shock tests on copper and its alloys, at different temperatures. A maximum brittleness occurs at 300-400° C., with a maximum resilience near 100° C. (*Comptes Rendus*, clvi, 1899). Further tests on bronze and brass show a decided brittleness in the neighborhood of 200-300° C. Lead

greatly increases the brittleness in brass and bronze (*ibid.*, clvii, 548).

Hardness.—The hardness of metals, with special reference to iron and to alloys, is discussed by Edwards and Carpenter (*Jour. Iron and Steel Inst.*, lxxxix, 1914, p. 138), who note two kinds—that produced by mechanical work and that produced in certain alloys when quenched from high temperatures. Their paper deals with the mechanism of annealing, the hardening of metals by quenching and the constitution of austenite and martensite, whose apparent difference is due to twinning.

Corrosion.—The microchemistry of corrosion of the brasses has been investigated by Whyte and Desch (*Jour. Inst. of Metals*, x, 303; xi, 235). They found that in the case of the 70 : 30 brass, the presence of one per cent. of tin increased corrosion but two per cent. lead very materially retarded corrosion.

The work of the Corrosion Committee of the Institute of Metals has been continued (*ibid.*, x, 13). They show that in the case of the brasses examined corrosion with seawater occurs in two ways, at ordinary temperature or "complete corrosion" and at slightly elevated temperatures or "selective corrosion." These two are not comparable. They advocate the abandonment of the plain 70 : 30 brass tube for either 70 : 29 : 1 (tin) or 70 : 28 : 2 (lead), careful control of temperature and the extended use of electrochemical protection.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

DANIEL H. COX

General.—During the year 1914 general progress in naval architecture and marine engineering in the United States has not been marked, either in the direction of new construction or in the development of new types of machinery or vessels. The passage of legislation depriving American coastwise vessels of the anticipated preference in toll charges through the Panama Canal (see I, *American History*) brought to an end many new construction projects that it had been confidently expected would be commenced, and would make a real beginning of an American built, owned and manned merchant marine. The disturbed state of affairs in Mexico and the serious effect on business of every nature resulting from the general European War have naturally reacted most unfavorably upon the shipbuilding industry, the building yards as a rule having secured but little new work of any magnitude.

Shipbuilding.—While it is true that but little new construction has been undertaken the question of safeguarding life at sea in the future has been most carefully studied, with the undoubted result that much more careful government supervision of all vessels will cause marked advance in the direction of safety in travel by water. The International Conference on Safety of Life at Sea held in London, terminated its labors on Jan. 20, when accredited representatives of the 13 principal powers signed the most comprehensive international agreement relating to the merchant marine which has ever been effected. This conference after much study and investigation determined upon numerous important regulations governing watertight subdivision, location and extent of double bottoms, type and location of watertight doors, number, capacity and method of handling lifeboats, methods of communication at sea, and all other matters relating to the successful construction and operation of vessels upon the high seas. The next step will be the enactment of the necessary legislation to put into actual effect the results of this important conference. While the scope of this conference, being international in character, does not include the coastwise or domestic traffic of the various contracting nations, legislation also including this traffic will undoubtedly follow as a natural result of the legislation applying to international traffic. (See also XX, *Merchant Marine.*)

One result of the European War, the ultimate effect of which upon American shipbuilding is by some predicted as beneficial and by others injurious, has been the permission granted by Congress to place under the American flag vessels owned by Americans but

built abroad, and further granting the President the power, at his discretion, to waive for a limited period the requirements that vessels under the American flag shall be officered and manned by American citizens. (*Ibid.*)

It would seem that the present situation should afford to the United States a real opportunity of securing, by purchase or preferably construction, a merchant marine in keeping with its importance as a world power, and it is to be hoped that this will be accomplished. This most important problem is now being carefully studied by the Government and by those interested not only in shipbuilding and shipowning, but by the manufacturers and importers who are now hampered in getting their products transported by the great reduction in available foreign tonnage. The prevailing high freight rates and the withdrawal of much competition in trade with neutral powers present a most tempting prospect to American capital. Unfortunately, the uncertainty as to the length of time during which it may be expected that the freight rates will even approximate their present high values, and the certainty that when foreign competition in the carrying trades over sea is again introduced American owned and operated ships, by reason of the high rate of wages paid our seamen, cannot successfully operate without governmental aid, have up to the present prevented any large new investments by American capital in shipping.

Marine Engineering.—Owing to the small amount of new construction but little may be said to have been accomplished commercially in advancing the science of marine engineering. In vessels for the Navy, however, advance has been made in several directions, the results of which will undoubtedly be felt in future vessels for commercial use. The two government colliers, one propelled by the motors driven by electricity generated on the vessel, and the other by geared turbines, have had further trials with most encouraging results, and the Government has placed a contract for a new battleship having electric propulsion. The use of geared turbines in the high-powered torpedo boat destroyers has been further developed. The Diesel engines in submarines have been exhaustively tested with marked improvement in performance, and the recent trials of the government vessel *Fulton*, a supply and repair ship for submarines driven by a Diesel engine of 1,000 h. p., promise well for the future of this type of motor. Oil fuel continues to be more and more used in place of coal for firing marine boilers, and the use of heavy oil or distillate as a fuel in internal-combustion engines of the semi-Diesel or hot-bulb type is becoming more general. (See also XII, *The Navy.*)

New Steamships.—Two notable additions to the trans-Atlantic passenger fleet have made their first visits to New York during the season of 1914. The *Aquitania* of the Cunard Line, the most recent vessel of this fleet, is 901 ft. long, 97 ft. beam, 92 ft. depth of hull, her tonnage being 47,000 gross. On her maiden trip, she averaged for two days 24.24 knots, at which speed her four turbine engines developed 56,000 h. p., her maximum power being 60,000. This superb vessel seems to be a pronounced success in every particular. The arrival in New York of the *Vaterland* of the Hamburg-American line was remarked with great interest. This vessel is 950 ft. long, 100 ft. beam and her gross tonnage is 54,500. Like the *Aquitania* she is driven by four turbines, their combined horse power reaching the stupendous figure of 95,000. The *Vaterland* has accommodation for 3,250 passengers and carries a crew of 1,000. The average speed on her first trip from port to port was 23.02 knots. She has 82 lifeboats, including two motor boats, and all her equipment is of the most approved and modern character.

XXII. MATHEMATICS AND ASTRONOMY

MATHEMATICS

E. B. Wilson

Path of Falling Bodies.—The theory of the southerly (or northerly) deviation of falling bodies was mentioned in the Year Book for 1913 (p. 613). It has been taken up during 1914 by Professor Roever (St. Louis) and Professor Moulton (Chicago), from the latter of whom we may quote somewhat freely. The subject of the deviation of freely falling bodies has been considered in many memoirs from the time of Laplace and Gauss to the recent work of Roever and Woodward. All writers have agreed that a body falling from rest near the surface of the earth will deviate to the eastward with respect to a plumb-line hung from the initial point, but a great variety of results have been obtained regarding the deviation measured along the meridian. For example, Laplace found no meridional deviation, Gauss a small deviation toward the equator, Roever a deviation toward the equator several times that of Gauss, and Woodward a small deviation away from the equator. The variety of these results is due to various methods of approximation not strictly comparable one with another and not accurately discussed with respect to the quantities neglected in the approximation. Professor Moulton gives a concise and elegant theory which leads to a result essentially concordant with that of Professor Roever, namely, that the deviation of a body freely falling a small distance near the earth's surface is toward the equator for all latitudes, and of the amount determined by Professor Roever. (*Annals of Mathematics*, June, 1914.)

Ratio of Arc to Chord.—The length of a plane curve is defined as the limit of the sum of an inscribed polygon when the number of sides of the polygon becomes infinite and each side becomes infinitesimal. For ordinary real curves this means that the limit of the ratio of an arc to its chord is unity as the arc and chord approach zero. For regular curves the value of the arc is expressible as an integral. Professor Kasner (Columbia) has discovered that there are regular, though imaginary, curves for which the ratio of the arc, as thus defined by an integral, to the chord approaches a limit which is real and less than unity at certain points of the curve (*Bull. Am. Math. Soc.*, July, 1914). This unexpected result is interesting and important; it shows how careful one must be in pure mathematics not to assume that his intuition is infallible. It has long been known that by making a curve sufficiently crinkly the limit of the arc to chord may become greater than unity.

The Discontinuous in Physics.—Considerable attention in theoretical physics has been paid during the year to the structure of the atom and molecule. The corresponding mathematical work is by no means satisfactorily complete, but a great deal of attention has been given to the mathematical treatment of various discontinuities which modern physicists suppose may exist, and which would not have been considered as possible of existence a few years ago. For instance, H. Bateman (Johns Hopkins) delivered a paper at the annual meeting of the American Mathematical Society, held in New York early in January, in which he presented some possible foundations for a theory of the Faraday tube which, as a physical concept, has been so prominently used by Sir J. J. Thompson. Like the theory of quanta originated by Planck and Einstein,

Bateman's theory and Thompson's hypothesis cannot yet be regarded as final; it is safe to say that the question of the discontinuous will receive before very long some more definite position in physics or will again be rejected from the science. (See also XXIV, *Physics.*)

Personal Notes.—American mathematics has suffered more than ordinary losses in the past year. George W. Hill, past president of the American Mathematical Society, renowned all over the world for his original contributions to mathematical astronomy, and in particular for the introduction of infinite determinants, has died. Another serious loss was Alexander MacFarlane of Canada, president of the International Association for the Promotion of Quaternions and allied subjects. He himself had contributed valuable researches, original and bibliographical, to this field. Another death was that of B. O. Pierce (Harvard), president of the American Physical Society and vice-president of the American Mathematical Society, a man whose great skill and wisdom in both mathematics and physics was only equaled by his unusual modesty. Still another loss was Charles S. Pierce, who, over 40 years ago, had contributed original ideas to pure mathematics and had produced researches in mathematical logic, particularly in the theory of relatives, which have not yet been accorded their full value; in this latter field he was evidently 40 to 50 years ahead of his time. More recently, he has been active in philosophy, to which his scientific mind of great insight has brought valuable ideas.

Professor Bôcher (Harvard) was in Europe during the spring as exchange professor from Harvard to the Sorbonne. We were to have had in this country during the year as exchange professors Maurice Fréchet (Poitiers, France) at the University of Illinois, and W. Voight (Göttingen, Germany) at Harvard; but the European War has deprived us, so far at any rate, of their presence. Professor Boutroux (Princeton) has had to return to France. Prof. E. W. Brown (Yale) was invited by the British Association to give an address on the "Theory of the Moon," in which he is an unexcelled expert, at the meeting in Australia during the past summer; this international exchange was fortunately not prevented. It is a pleasure to record the recognition of our fellow countryman, E. B. Van Vleck (Wisconsin), contained in the conferring upon him of the degree of Doctor of Mathematics by the University of Groningen at its tercentennial.

During the month of October a disastrous fire in University Hall, Columbia, destroyed very valuable records and publications of the American Mathematical Society, a loss which it will be very difficult to make good.

ASTRONOMY

R. S. Dugan

Personal.—The Paris Academy awarded the Valz prize to Fowler for researches in spectroscopy; Wolf received the Royal Astronomical Society's gold medal for research in celestial photography and spectroscopy; and Backlund the Bruce medal of the Astronomical Society of the Pacific. The losses to astronomy by death have been heavy. Sir David Gill, Winslow Upton, E. S. Holden, Scheiner, Weinek, Lehmann-Filhés, Pechûle, Klein and G. W. Hill have all died during the year.

Observatories and Instruments.—A very important new solar observatory is to be established in New Zealand with the gift of $150,000 by Thomas Cawthron. This will fill the largest gap—between California and India—in the present chain of solar observatories.

The large telescopes recently installed or under construction are chiefly of the reflector type. The disk of the 100-in. reflector for Mt. Wilson promises to be fully as satisfactory as the 60-inch now in use. The Canadian 72-inch reflector will be located near Victoria, B. C., where the diurnal range in temperature is peculiarly small and the "seeing" 50 per cent. better than at Ottawa. A 60-in. reflector is being figured at the Cordoba

Observatory. The 30-in. mirror, which is to be mounted in Helwan, is completed and pronounced remarkably good. The 30-in. objective for the Allegheny refractor is finally ready.

At Mt. Wilson the Koch registering micro-photometer has been applied by its inventor to the study of certain types of laboratory spectra, and is found to show the relative intensities of different lines, under varying conditions, and the distribution of the intensity within the line itself, far better than can be derived from eye estimates (*Ap. J.*,[1] xxxix, 213). From the work of Rosenberg, Guthnick and others, it appears probable that the photo-electric photometer will excel even the selenium photometer in accuracy. This is the latest means devised for eliminating the fallible judgment of the human eye in the measurement of the comparative brightness of two stars. An electrode formed of one of the alkali metals in a well exhausted tube emits electrons when exposed to light at a rate proportional to the intensity of the light. The resulting current can be accurately measured.

Ross has devised a mechanism for moving a photographic plate in an east-west direction in the focus of a zenith telescope, and applied it with much success to the investigation of the variation of latitude (*A. N.*, 4713).

The disadvantage of the objective prism in competition with the slit spectograph in the detection and measurement of line shifts has lain in the difficulty of placing comparison spectra on the same plate. Schwarzschild (Potsdam Publ. No. 69) finds that by a combination of methods, radial velocities can be determined with a probable error of 7 km. per second. This error, while not large, hardly repays one for the amount of labor involved in the calculation. Hamy describes (*C. R.*, clviii, 81) a device for utilizing the objective prism in the measurement of radial velocities.

The Earth.—The variation of latitude showed a further decrease to an unusually small value at the middle of 1913, followed by a slight increase to the end of the year.

The rigidity and viscosity of the earth have been investigated by Michelson, Gale and Moulton with elaborate apparatus installed near the Yerkes Observatory. Two six-inch pipes, each 500 ft. in length, were buried in trenches six feet deep running east and west and north and south, half filled with water, and sealed. The change in level of the water, caused by the change in the attractions of sun and moon, was measured through the glass ends of the pipes every hour from 6 a. m. to midnight and every two hours from midnight to 6 a. m., for a period of two months. The periods of these tides indicate, in a preliminary discussion, that the rigidity and viscosity of the earth are comparable with that of steel (*Ap. J.*, xxxix, 105). (See also XXIV, *Physics.*)

The Moon.—Hayn, in his *Selenographische Koordinaten* (4te Abhandlung), gives drawings of the irregular limb of the moon derived from the measurement of many photographs taken under as many positions of libration as possible. These drawings are to serve in correcting measures of the moon's limb.

Brown has published (*M. N.*) a number of papers in which he discusses the constant of the moon's motion, derived from the Greenwich observations according to the new lunar theory. In the May number of *Observatory* he states that the outstanding difficulties are not due to neglect of terms or to errors in the gravitation theory, but to the existence of unknown forces. Addressing the British Association for the Advancement of Science at the Australia meeting, Brown set forth fully the present status of the lunar problem. To sat-

[1] References to periodicals are given under the following abbreviations:

A. J., *Astronomical Journal*, Albany.
A. N., *Astronomische Nachrichten*, Kiel.
Ap. J., *Astrophysical Journal*, Chicago.
C. R., *Comptes Rendus de l'Académie des Sciences*, Paris.
M. N., *Monthly Notices of the Royal Astronomical Society*, London.
Obs., *Observatory*, London.
The Roman numerals denote volumes; the Arabic numerals pages, except in references to *Astronomische Nachrichten* and the *Observatory*, where they denote individual numbers of the periodical.

isfy the observations of the moon it is necessary to take the earth's ellipticity as 1/294 instead of 1/297, the value adopted by the *Nautical Almanac* directors in 1911 (*Science*, Sept. 18, 1914).

The Sun.—The European War interfered sadly with the observation of the total solar eclipse of Aug. 21. The parties which went to Minsk and Hernösand were successful. The corona was of the square type.

Wilsing (Potsdam Publ. No. 66) has determined the effective temperature of the sun by comparison, photographically, with a black body. Measurements by Angström and Kennard of the energy in the green part of the spectrum, and hence independent of aqueous absorption, made during seven days on Mt. Whitney with an Angström pyrheliometer (*Ap. J.*, xxxix, 350), fail to show any variation of the sun during that time in this part of the spectrum exceeding two per cent.

Three theories have been advanced to explain the observed displacements toward the red of the lines of the solar spectrum. Jewell, Fabry and Buisson concluded that the phenomenon was due to a pressure of some five to seven atmospheres in the reversing layer. Evershed (*Obs.*, 472) has found, among other difficulties, that the iron lines most sensitive to pressure are shifted on the average least, and by an amount corresponding to a pressure of but one-quarter of an atmosphere. He ascribes the displacements to motion in the line of sight and supposes a descending movement of the cooler vapor all over the sun. Julius (*Obs.*, 475; *Ap. J.*, xl, 1) rejects both these hypotheses as insufficient and interprets this phenomenon, as well as the Evershed distortion of sun-spot lines, recently explained by St. John as due to the horizontal motion of the vapors, on the basis of anomalous dispersion. He finds a mutual influence of the Fraunhofer lines, foreseen by the anomalous dispersion theory.

S. A. Mitchell has published an exhaustive study of the wave-lengths of the chromospheric lines found in spectra obtained at the total eclipse of 1905 (*Ap. J.*, xxxviii, 407). By skillful exposure he obtained an unusually large number of the lines which are faint in the solar spectrum. St. John finds, in a more recent paper (*Ap. J.*, xl, 45), that Mitchell's observational material indicates a distribution of vapors in the solar atmosphere similar to that based on the former's interpretation of the Evershed distortion of sun-spot lines; that the vapors of the elements ascend in detectable amounts to different heights, and that the lines of any one element originate at depths increasing with decrease of solar intensity.

During the present minimum the sun has been more completely free from spots than at any time since 1810.

The Planets.—Saturn has been photographed by Tikhoff (*Pulk. Mitt.*, vi, 25) through a variety of filters with the interesting result that the equatorial zone is found to be richest in yellow-green light, the ring in indigo, while the edges of the disk are bluish. This is an indication that very little light penetrates the atmosphere.

On July 21 a ninth satellite of Jupiter was discovered at the Lick Observatory by Nicholson. It is about one magnitude fainter than the eighth satellite, has a period of about three years, and a retrograde motion. The observations of several astronomers show that four satellites of Jupiter and five of Saturn vary in their brightness. Guthnick, discussing all available observations (*A. N.*, 4741), concludes that the variation of the inner satellites as a group differs from that of the outer satellites.

Many new asteroids have been discovered and many known ones reobserved by an increasingly large number of observers. To prevent duplication of work, the Rechen Institut at Berlin has divided the zones of the sky where asteroids are found, and assigned fields of labor to the astronomers interested.

Comets.—Comet 1913f, Delavan, discovered in Dec., 1913, has been the most conspicuous comet of 1914. The great length of time between discovery and perihelion passage—ten months—was very unusual. In September and October the comet was a fine object to the naked eye or opera glass, not far from the Dipper. The head became as bright as the third magnitude. Barnard found one part of the tail photo-

graphically bright, the other visually bright. Four new comets were discovered during 1914: 1914a, Kritzinger, and 1914c, Neujmin, were very faint; 1914b, Zlatinsky, became quite bright in May; 1914e was discovered by several observers in the southern hemisphere. At the time of discovery 1914e was a naked-eye object, but became rapidly fainter as it came north. Encke's comet was discovered photographically on its return in 1914.

Stars and Nebulæ.—The ninth series of the very valuable Wolf-Palisa photographic charts has been published. Quite accurate star positions can be read from them with a scale. Auwers has compared several catalogues, including the A. G. zone catalogues, with Küstner's 1900 catalogue, and has determined reduction tables for them, regarding the corrections as depending on magnitude (*A. N.*, 4743). Volume xi of the *Lick Publications* contains a superb set of reproductions of photographs taken by Barnard with the 6-in. Willard lens.

Spectroscopy.—Barnes has photographed the spectra of magnesium, calcium and sodium vapors in an electric furnace of his own construction, which gave conditions of density, temperature and excitation producing spectra resembling that of sun spots (*Ap. J.*, xxxix, 370). King finds that there are but few titanium lines for which a low temperature is favorable. Many of the lines are excited in a limited range of temperature (*ibid.*, 139). St. John and Ware (*ibid.*, 5), in continuation of their former work, have examined the international secondary standards of wave-length from λ 4282 to λ 5506, and have determined the wave-lengths in international units of a series of 198 lines in the arc spectrum of iron between λ 4118 and λ 5506, as tertiary standards. An ordinary lead-pencil is found by Lunt (*Annals Cape Obs.*, x, pt. 4) to give an unexpectedly rich spectrum of fine sharp metallic lines, offering a new and convenient comparison spectrum.

J. W. Nicholson presents (*M. N.*, Dec., 1913; Jan., March, April, May, 1914) a complete theoretical scheme for the simple-ring elements and their evolution products, which, he believes, are present in nebulæ, novæ, Wolf-Rayet stars and the solar corona. Nicholson finds that there can be but nine of these simple atomic systems; that ordinary dynamics is valid for their free vibrations; and that the masses of the nuclei are proportional to the squares of their charges. The proto-elements 4e and 6e, "nebulium" and "archonium," should give, among others, the lines λ 5007 and λ 3729. These are found in the spectra of nebulæ. The first evolution products show lines in the Wolf-Rayet stars. The strength of Nicholson's point of view has been apparently increased by the interferometer measurements by Fabry, Buisson and Bourget (*C. R.*, April 6, 1914) of the line λ 3729 in the spectrum of the Orion nebula. From the width of the line the atomic weight of nearly three is found. Archonium has a theoretical atomic weight of 2.95. The authors find, however, that this result leads them to a temperature of 15,000° for the Orion nebula. To avoid this difficulty it is necessary to assume that part of the width of the line is produced by irregular radial motion within the nebula. The atomic weight found is, therefore, a minimum value. The true value may be much larger.

Miss Cannon has classified and described the spectra of 150 gaseous nebulæ and 20 novæ as well as those of several groups of stars which have bright lines (*Harv. Ann.* lxxvi, No. 3). An interesting general development of novæ is brought out by Adams and Pease by a comparison of spectra of four novæ of various ages. A spectrum of Nova Aurigæ of 1891, now of the 14th magnitude, was obtained with the 60-in. in 16 hours. As the disturbance subsides, the nebulæ lines apparently gradually disappear, the continuous background brightens, and the spectrum settles down essentially to the Wolf-Rayet type.

The results achieved with the spectrograph become each year more startling. Following upon the announcement last year of the large radial velocity of the Andromeda nebula, come the astounding statements by Slipher that some of the white nebulæ are moving in the line of sight at velocities as great as 1000 km. per second; and that opposite ends of the long axis of the Virgo nebula NGC 4594, which is one of those moving through

space at great speed, show a difference in velocity of 200 km. per second. This apparently indicates a rapid rotation of the nebula. He further suspects a rotation of the great Andromeda nebula. Wolf announces that he has found evidence of the rotation of the nebula M81 Ursæ Majoris at a velocity of the order of 300 km. per second. Lalande 1966 is found to have a radial velocity of 325 km. per second,—the largest so far observed among the stars.

Photometry.—By careful experimentation (*A. N.*, 4720) Wilsing finds that the ratio of the intensity of a ray emerging from a system of Nicol prisms to the intensity of the incident ray is independent of wavelength (between λ 4250 and λ 6300), and that within an interval of 3.5 magnitudes the ratio is given by Malus' law.

Capon (*M. N.*, April, 1914) and Zurhellen (*A. N.*, 4729) independently discuss the effect of the motion of the source on the velocity of light from the evidence furnished by the observation of spectroscopic binaries, and conclude that any such effect is very small. The Ritz emission theory calls for a constant velocity of the center of the light wave, equal to the velocity of the source at the instant of emission.

Kron (Potsdam Publ. No. 67) has carried out an elaborate investigation of the law of blackening of photographic plates. He finds that in the formula: blackening = function of (brightness of source $\times$ exposure-time^p), the exponent p is a variable, having the value 1 (hence reducing to the old reciprocity law) for the "*optimale Intensität*," the light which produces the greatest effect upon the plate in the shortest time. Each kind of plate has its peculiar law, which is altered by altering the manner of development.

Great industry is being shown in establishing a reliable foundation for the photographic photometry of the sky. The Harvard sequence of stars near the North Pole has been extended by Seares, working with the 60-in. reflector on Mt. Wilson, and a comparison of the two scales made. The complete sequence now contains 96 stars whose magnitudes have been derived from a discussion of measurements of 299 plates taken with 13 different telescopes with apertures ranging from 0.5 to 60 in. (*Harv. Ann.* lxxi, No. 3). Several wholly independent methods for determining absolute magnitudes have been used. Errors from order of exposure and distance from center of plate have been fully investigated. The so-called "color equation" of the individual instrumental equipment proves a very important factor. The observed difference between visual and photographic brightness for different spectral types varies with the absorption of the lenses, the sensitiveness of the plate and the observer's eye, the character of the photometer used, etc. The "color equation" of a catalogue of photometric results can be determined quite closely. It is now proposed to enlarge the international definition of photographic magnitudes to read as follows: "Photographic magnitudes coincide with visual magnitudes on the Harvard system for stars having spectra of class A_0 between the magnitudes 5.5 and 6.5, and are fainter than the visual magnitudes by 1.00 magnitude for stars having spectra of class K_0 between the same limits." Seares concludes that a photographic magnitude can be determined with a probable error of ± 0.11 magnitudes. A catalogue of the photographic magnitudes of all stars brighter than the ninth magnitude and within 15° of the North Pole has been made at the Greenwich Observatory. The probable error of a single observation is stated to be ± 0.064 magnitude. The catalogue is based on the Harvard sequence. Halm, at the Cape Observatory, has determined the photographic magnitudes of a sequence of stars near the South Pole (*M. N.*, lxxiv, 600). Martin and Plummer have published (*ibid.*, 225) a photographic light-curve of the variable XZ Cygni. The variation of this star is of the Cephei type. The probable error of a single measurement, ± 0.02 to ± 0.03 mag., obtained by Martin, is remarkably small.

If the Andromeda nebula consists of a central star involved in nebulous matter which is illumined by the star, as Reynolds believes, then the light-curve along the major axis of the nebula should be the inverse square

curve $x^2y =$ constant. Reynolds finds by observation a curve very similar but flattened at the apex.

Bright stars are more variable than faint ones, according to D'Esterre, who finds from a study of 34,000 stars that while one in every 277 stars brighter than the ninth magnitude is a variable, the ratio among the fainter stars is but one in 16,900.

Radiation and Color.—A successful attempt to measure the heat radiation from the stars was reported by Coblentz at the Evanston meeting of the American Astronomical Society. With the Crossley reflector of the Lick Observatory, stars of the fourth magnitude gave measurable deflections. The reddest stars, such as α Herculis and β Pegasi, radiate very much more heat in proportion to their light than the white stars.

The faint stars were found to be redder than the bright stars in two fields where Seares compared the photographic with the visual brightness (*Ap. J.*, xxxix, 361). Tikhoff obtains a similar result in the Pleiades. Evidence to this effect has been accumulating for some time.

Number and Distribution of Stars.—Henie publishes (Lund Obs. Publ., ser. ii, no. 10) a chart showing the distribution of the stars to the eleventh magnitude, as derived from a count of selected areas of the 55 glass negatives of the Harvard Map. The Milky Way is well defined, and the total number of stars to the eleventh magnitude is found to be 1,013,328.

A count of the stars in each photographic magnitude to the eighteenth, made by Chapman and Melotte, leads to the conclusions that the condensation to the galaxy is the same for all magnitudes; that the rate of increase of the number of stars diminishes steadily from the sixth magnitude downward; that one-half of all the stars are fainter than the 23d or 24th magnitude; and that the total number of stars is not less than one billion (Royal Astron. Soc. *Memoirs*, lx, pt. 4).

The number of nebulæ down to the limit of one-hour plates taken with the Mt. Wilson 60-in. is estimated by Fath from selected counts at 160,000. The nebulæ show a striking condensation toward the galactic poles but with great variation in density; an almost complete absence in the Milky Way; and no systematic orientation of their planes. The "white" nebulæ are much the more numerous.

Parallax and Proper Motion.—The accumulation of accurate stellar parallaxes is, from the nature of the problem, slow, but is likely to become more rapid, as many of the great observatories are at work on the problem by photographic methods.

A fairly reliable estimate of the distance of stars too far away to be measured directly can be obtained by general reasoning, based on known statistics, from their radial velocities, proper motions, stream motions, apparent magnitudes and color indices. Certain assumptions are necessarily involved. These methods are exemplified in a remarkable manner by Kapteyn in a determination of the individual parallaxes of the brighter helium stars in the southern hemisphere, between galactic latitudes $\pm 30°$ and galactic longitudes 216°-360° (*Ap. J.*, xl, 43). Three hundred and nineteen stars brighter than the sixth magnitude were discussed. All but four per cent. of the helium stars within the limits chosen are shown to belong to one stream directed toward right ascension 18^h 18^m, declination $+42$, and moving at a velocity of —18.3 km. per second. The parallaxes are found by the method previously used for the Hyades and Ursa Major groups. It is shown that the helium group is quite sharply limited in distance as well as in longitude and latitude. About one-half of these stars are more than 100 times as bright as our sun and several, such as β Centauri and κ and λ Scorpii, are 1,000 to 2,500 times as bright.

From a discussion along general lines based on the proper motions shown by 3,700 Carrington stars around the North Pole from 1855 to 1900, Dyson (*Nature*, xliii, 574) draws many interesting conclusions concerning the distribution of the stars. The stars thin out very materially at great distances—80 per cent. of the stars discussed lie between 100 and 500 "parsecs." The yellow stars average the nearest, the red stars the farthest and most luminous. Ninety to 95 per cent. of all the stars discussed are brighter than the sun.

Gyllenberg and Wicksell have determined the axes and orientation in space of the ellipsoids which represent the direction and amount of the velocities of radial and proper motion of the stars. For the radial velocities an ellipsoid is found whose longest and shortest axes are in the plane of the Milky Way. Proper motions give a more oblate ellipsoid with the shortest axis directed toward the pole of the Milky Way.

Stellar Evolution.—Russell, writing in *Nature* and the *Observatory* during the year, has brought together much evidence with which to champion the view that the accepted interpretation of the classification of stellar spectra does not represent the complete history of stellar development. According to his opinion, and that of some others, the observable order of evolution begins with large diffuse bodies of low temperature but bright on account of their great surface area. As the star contracts its temperature rises, counteracting the effects of diminished size and leaving the star still bright. When the density reaches about one-tenth that of the sun, the temperature is at a maximum. After this the temperature falls and the brightness rapidly decreases. The "giant stars" of great luminosity are thus regarded as in an early stage of evolution, particularly the reddest ones, while the relatively faint "dwarf stars" represent the later stages. Only the most massive stars should reach the highest temperatures. The stars of spectrum B are almost certainly the hottest and also the most massive.

Dynamics.—Jeans (*Phil. Trans.*, 213) arrives at the conclusion that the ideal incompressible mass, whose stability has been discussed by Darwin, Poincaré and others, supplies a surprisingly good model by which to study the behavior of compressible, heterogeneous masses, at least in the spheroidal form. He finds that the most "dangerous" modes of vibration are common to both classes and that they leave the symmetrical figure at about the same velocity of rotation.

Absorption of Light in Space.—The problem of determining a possible absorption of light as it travels through space has received considerable attention during the year. Several independent researches show that the apparently faint stars are, on the average, redder than the brighter ones. If the faint stars are farther away than the bright ones, then the color of stars of the same spectrum is affected by distance. One of the possible causes is the absorption of light in space. Adams has recently compared the spectra of pairs of stars of the same spectral type, one known to be near, the other assumed from its small proper motion to be more distant (*Ap. J.*, xxxix, 89). In a few cases the spectrum of the nearer star was found to be distinctly more intense in the violet, and in no case was the opposite condition observed. More recently, however (*Ap. J.*, xl, 67) he and Kohlschütter have discussed a large number of radial velocity spectrograms and have found that the continuous spectra of the small proper motion stars are decidedly less intense in the violet region relatively to the red than the spectra of the nearer and smaller stars, but that this effect must be ascribed in large part to conditions in the stellar atmospheres, since it varies with the spectral type. A considerable number of the small proper motion stars show hydrogen lines of abnormally great intensity, which radial velocity measurements show to be produced almost entirely in the stars themselves. Further, these authors find that certain lines are usually strong in the small proper motion stars and other lines strong in the large proper motion stars. The intensities of these lines in pairs are found to serve as a measure of the absolute magnitudes of the stars, giving results in good agreement with those found from parallax and proper motion. Hnatek (*A. N.*, 4731) finds no difference in the temperature of near and distant stars of the same type. Tikhoff finds evidence of a selective absorption in the ultra-violet, disappearing very quickly toward the longer wave-lengths.

XXIII. GEOLOGY, METEOROLOGY, AND GEOGRAPHY

GEOLOGY

DYNAMIC AND STRUCTURAL GEOLOGY

J. B. Woodworth

Geophysics: Isostasy.—The experimental investigation of the condition of the earth's interior has been notably advanced recently by Michelson (*Jour. of Geol.*, xxii, 97-130) in a novel manner (see XXII, *Astronomy*), confirming the deduction previously demonstrated by the seismographic record of the rate of propagation of vibrations through the earth, that its inner mass possesses a coefficient of rigidity as great as or greater than that of steel. Michelson interprets his observations as meaning that the coefficient of viscosity of the earth's interior has also the same high value. In the matter of isostatic compensation Gilbert (U. S. Geol. Surv., Prof. Paper 85) reviews the work of Hayford and Bowie on gravity anomalies, discusses several suggested interpretations, and is led to discard the assumption of uncompensated excesses and deficiencies in mass in the earth-crust in favor of the view that the anomalies of gravity "express chiefly an effect of heterogeneity in the nucleus and an effect of irregularity in the vertical distribution of densities in the crust." On the more strictly geological side which takes account of the known structure of the crust, T. C. Chamberlain and Joseph Barrell (*Jour. of Geol.*, xxi and xxii) discuss at length the rôle of isostasy as a factor in crustal deformation and accord it a minor part. Hobbs analyzes the structures and folding movements in great arcuate mountain ranges of Tertiary time (*ibid.*, xxii).

Geological Climate: Glacial Periods.—The recognition of glacial deposits in the geologic section prior to the well-known surface moraines of the "glacial period" goes on by leaps and bounds. Atwood announced in December, 1913, the discovery by the U. S. Geological Survey of a typical bed of tillite in the San Juan Mountains of southwestern Colorado, either of late Cretaceous or early Eocene age. Schuchert (Carnegie Inst., Publ. 192) reviews the evidence, including ancient glaciation, bearing on "Climates of Geologic Time." The distribution of volcanic dust in the air, suggested by W. J. Humphreys (Bull. Mt. Weather Obs., Wash., vi, pt. i, 1-34), Schuchert finds does not appear to be a primary factor in bringing in glacial climates. He concludes that the markedly varying climates of the past seem to be due primarily to periodic changes in the form of the earth's surface, accompanied by variations in the amount of heat stored by the oceans. M. L. Fuller (U. S. Geol. Surv., Prof. Paper 82) has presented a compendious and detailed account of the geology of Long Island, N. Y., including the terminal moraine and older glacial deposits. Evidence of four glacial epochs are found, represented by till or by outwash gravels and separated by three interglacial episodes characterized by erosion, deposition of clay or the formation of peat deposits. The excavation of the Hudson submarine channel is referred to the Pleistocene period. In the same report the Cretaceous deposits of the island are subdivided and mapped in the light of the most recent survey. J. W. Goldthwaite (Geol. Surv. of Canada, *Summary Rept.*, 1914, 357) reports on the marine shore lines in southeastern Quebec. H. L. Fairchild (*Bull. Geol. Soc. Am.*, xxv, 219-242)

argues that the terraces and plains in the Connecticut Valley were deposited in waters at sea level at the close of the glacial period. G. D. Hubbard (*Am. Jour. Sci.*, May, 1914) finds evidence of tilted glacial lake shore lines in Ashland and Wayne counties, Ohio. The tilt rate is given as four feet per mile rise to the north. W. C. Alden and E. Stebinger (*Bull. Geol. Soc. Am.*, xxiv, 529-572) describe in greater detail than heretofore the extension of pre-Wisconsin glacial drift in the region of the Glacier National Park in Montana.

Transportation of Débris by Running Water.—The Italian hydrographers Guglielmini and Frisi laid the foundations of the subject which Gilbert (U. S. Geol. Surv., Prof. Paper 86) has subjected to critical experiment and vigorous mathematical treatment in the most notable contribution to the advance of geological science during the past year (see also *Physical Geography of Land Areas, infra*). In the matter of sediments, Grabau (*Bull. Geol. Soc. Am.*, xxiv, 711-713) gives a classification of marine deposits. On the interpretation of the peneplain of the northern Appalachian region, Barrell (*ibid.*, xxiv, 688) offers the explanation that this ancient land surface consists in reality of a series of piedmont terraces cut by marine action. Barrell correlates these terraces with coastal plain deposits varying in age from the Lower Cretaceous (Comanchean epoch) to the Pliocene.

Geological Time-Table for North America.—Schuchert and Barrell (*Am. Jour. Sci.*, xxxviii, July, 1914) have published a "Revised Geologic Time-Table for North America." The term Waucobian is employed for the Lower Cambrian, Croixian for the Upper Cambrian. Chamberlain and Salisbury are followed in the use of Comanchean for the Lower Cretaceous.

Origin of Coal.—The origin of coal in all its aspects has received notable attention in recent publications. David White (U. S. Geol. Surv., Prof. Paper 85 E) points out the occurrence of resins in Cretaceous and Tertiary coals, and argues for the origin of high-grade coal in peat. In a report on "The Origin of Coal" (U. S. Bureau of Mines, Bull. 38) White and Thiessen discuss at length the conditions attending the formation of coal, refuting the algæ hypothesis and holding that all coal was laid down in beds analogous to the peat beds of to-day. All kinds of plants went into the deposit. Coal is chiefly composed of the residue of plants, resins, resin waxes, waxes, and higher fats or derivatives therefrom. The various grades of coal result from decomposition, elimination, maceration, and chemical reduction begun in peat, modified by biochemical agencies in the peat stage and dynamochemical agencies during the coal stages. C. A. Davis contributes to the work a chapter (pp. 165-186) on the "Origin and Formation of Peat." E. C. Jeffrey (*Bull. Geol. Soc. Am.*, xxiv, 715-716) finds that the "mother of coal," otherwise known as fusain, faserkohle, etc., is the charred or partly charred vestige of woody structures. Coals containing mother of coal are ascribed to deposition of vegetable matter in open lakes and not to the growth of peat bogs. (See also *Economic Geology, infra.*)

Progress of Geological Surveys.—The national and state surveys continue to publish geological maps and accompanying descriptive texts of extensive areas. In the eastern United States these maps represent resurveys called for by advance in the classification of formations or by the development of new industries demanding a closer discrimination between rocks of economic use. The geological map of New Jersey, 1914, by Lewis and Kummel is a conspicuous example of such work revised from time to time. Much of the work in the Rocky Mountains and westward covers hitherto unmapped areas. (See also X, *Mineral Resources.*)

L. F. Noble (U. S. Geol. Surv., Bull. 549) gives a detailed description of the structure of the Grand Cañon District in Arizona west of the railroad approach at Grand Cañon. D. F. MacDonald (*Bull. Geol. Soc. Am.*, xxiv, 707-711) gives an account of the rock succession on the Isthmus of Panama. L. V. Pirsson (*Am. Jour. Sci.*, Sept., 1914) gives the record of the deep Princess Hotel boring (1,413 ft.) on Bermuda Island. No

fresh water was encountered below sea level. From 135 ft. above sea level to 380 ft. below, chalky limestone was encountered; thence down to 590 ft., altered volcanic debris; to 695 ft., volcanic sands and gravels; from that level to the bottom of the boring mainly basaltic lava-flows; proving the correctness of the conjecture that the island is built on the eroded and submerged summit of a volcanic mountain.

In Pre-Cambrian geology, C. D. Walcott (*Smithsonian Misc. Coll.*, lxiv, no. 2) describes the continental conditions of North America in Algonkian time and ascribes the great sedimentary deposits of the period to deposition by aerial and stream processes in non-marine bodies of water and low areas.

Geology of the Paleozoic Periods.—Cushing and Rendemann (N. Y. State Museum, Bull. 169) report on Saratoga Springs and vicinity. Luther (*ibid.*, Bull. 172) issues a report on the Attica-Depew quadrangles. Pirsson and Schuchert (*Am. Jour. Sci.*, March, 1914) announce the discovery of Oriskany fossils on Parlin Stream in Maine. Hopkins describes the geology of the salt-bearing rocks of the Syracuse quadrangle. T. C. Brown (*ibid.*, May, 1914) holds that the Shawangunk conglomerate of Ulster County, N. Y., was deposited as shore gravel under water in a normal marine transgression during Salina and Upper Silurian time. A. G. Schultz (U. S. Geol. Surv., Bull. 543) describes the folded and faulted structure of the Gros Ventre and other mountains in Wyoming, including strata from the Cambrian upward. President E. A. Smith of the Geological Society of America in his retiring address (*Bull. Geol. Soc. Am.*, xxv, 157-178) dwelt on the pioneers in the survey of the geology of the Gulf coastal plain. W. J. Miller (N. Y. State Museum, Bull. 168) tells in simple language the story of the development of the form and structure of New York State. The three-volume report on the Devonian of Maryland (1913), by W. B. Clark, is the latest of an important series.

Canada.—The summary report of Director Brock of the Geological Survey for 1912 (Ottawa, 1914) contains numerous reports and geological maps of various districts, particularly in British Columbia. The *Memoirs* of the Survey should also be consulted for reports on areal geology. *The Archean Geology of Rainy Lake Re-Studied*, by A. C. Lawson (1913), presents the mature work of the author on classical Pre-Cambrian ground.

South America.—Several geologists from the United States contribute papers embodying investigations carried on in the Latin-American countries. A notable volume on natural history appeared this year in *The Papers of the Stanford Expedition to Brazil in 1911* (vol. i), under the direction of now President Brauner, who calls attention to the mode of weathering of granites in the tropics. Peruvian beds are described in northern Brazil by the same eminent geologist. Lisboa of Rio de Janeiro (*Am. Jour. Sci.*, May, 1914) describes fossil plant-bearing beds of Peruvian age in Maranhao and Piauhy. H. E. Gregory of the Yale Peruvian Expedition of 1912 (*ibid.*, Feb., 1914) gives an account of the Pliocene or Pleistocene, fossiliferous, lacustrine deposits of Ayusbamba. H. S. Palmer (*ibid.*, Oct., 1914) contributes geological notes on the Andes of northwestern Argentina.

Bibliography.—*Structural Geology* (Holt), by C. K. Leith, is an advanced treatise on the theory of rock structure. *Field Geology* (McGraw-Hill), by J. H. Farrell, is a useful guide to mining engineers and prospectors. *Engineering Geology* (Wiley & Sons), by H. Ries and T. L. Watson, is a timely work for the ever-growing field in which geological problems confront the engineer. *Pocket Dictionary of Common Rocks and Minerals* (Chapel Hill, N. C.), by Collier Cobb, is brief, compact and handy. *College Physiography* (Macmillan), by Tarr and Martin, is a comprehensive textbook.

Bibliography of North American Geology for 1912 (U. S. Geol. Surv., Bull. 545) and the same for 1913 (*ibid.*, Bull. 584), both by J. M. Nickles, are indispensable. A *Bibliography of Washington Geology and Geography* (Wash. Geol. Surv., Bull. 12) has been prepared by Gretchen O'Donnell. The monumental mono-

graph (*Das Antlitz der Erde*) of Professor Edouard Suess, who died in Vienna on April 26, is now translated as far as part 3 of volume ii in the French edition (*La Face de la Terre*) by de Margerie and associates of Paris. This last part is replete with bibliographic references to American geology appended to an excellent résumé of continental structure.

ECONOMIC GEOLOGY

ADOLPH KNOPF

Contact - Metamorphic Deposits.—The origin of the garnet zones and associated ore deposits that occur at the contact of limestone and intrusive granitic rocks has excited a lively interest during the year. W. Lindgren gives an admirably lucid résumé of the present status of knowledge concerning the contact-metamorphic deposits, as viewed by those upholding the doctrine that the deposits represent almost wholly the fixation of magmatic emissions (*Econ. Geol.*, ix, 283-292). C. K. Leith maintains the opposing view that the garnet and other silicates of these deposits are dominantly derived from the recrystallization of impurities originally present in the limestone (*ibid.*, 293-299). Most interesting is his contention that this hypothesis represents merely a difference of emphasis, surely a recession from the advanced stand taken several years ago.

One of the best papers on contact-metamorphic deposits in recent years is that by J. B. Umpleby on the genesis of the Mackay copper deposits, Idaho (*ibid.*, 307-358). These deposits were believed by J. F. Kemp to be a unique type consisting of arborescent, pipelike masses of garnetiferous ore inclosed in granite porphyry, which had been formed while the environing porphyry was still viscous. It is shown, however, that the loci of garnetization and ore deposition were determined by blocks of limestone that had become engulfed in the porphyry at the time of intrusion and that the mineralization ensued after the porphyry had become solid.

The problem of the contact-metamorphic deposits and the agency of magmatic waters was attacked from a different angle in two stimulating papers by A. C. Lawson. In the earlier paper (Univ. Cal., *Bull. Dept. Geol.*, viii, no. 1) he challenges the current interpretation that the great granite intrusion in southwestern Montana, known as the Boulder batholith, is a batholith, and argues that it is in reality an irregular, transgressive laccolith resting upon a synclinal basement. During the cooling of the laccolith, under this supposition, conditions would have been ideal for the establishment of a circulation of meteoric waters. It is from solutions of this kind, rather than from magmatic waters, that the ore deposits of the Butte and Helena mining regions originated. In the second paper (*ibid.*, no. 9, 219-242), Lawson, replying to his critics, attempts to show, with considerable success, that much of the argument in favor of magmatic waters applies equally well to the hypothesis of meteoric waters, and that the problem of the origin of contact-metamorphic deposits is still an open question. Continuing, he shows that at Bingham, Ely, Bisbee, Clifton-Morenci, and probably at Cananea, the intrusive mass with which the ores are genetically associated, has in every case invaded a syncline. The structural conditions therefore favored the establishing of an energetic circulation of waters of surface derivation; and until this possibility is disproved, the doctrine of magmatic waters cannot be held to be a scientifically established theory.

Gold Deposits.—The genesis of the Rand gold deposits, which now supply 38 per cent. of the world's annual output, is discussed at length by C. B. Horwood (*Min. and Sci. Press*, cvii, *passim*), who is an ardent advocate of the infiltration theory. The mineralization is regarded as genetically affiliated with the intrusion of the diabase dikes associated with the reefs, but the evidence adduced can hardly be deemed conclusive. Malcolm Maclaren, writing on "The Persistence of Ore in Depth" (*Congrès Geol. Int.*, XIIe Sess., 1913, 295-304), defends the thesis that geologic structure, by which is meant the chemical and physical character of the wall rocks inclosing gold deposits, is the vi-

tal factor in determining the persistence of ore in depth; "depth" exerts only an indirect control, inasmuch as the greater the depth, the greater is the likelihood of change of geologic structure.

Iron Ores.—E. C. Eckel gives in *Iron Ores, Their Occurrence, Valuation and Control* a succinct account of the world's iron ore deposits as viewed in their geologic and economic relations.

Colloids and Ore Deposition.—C. F. Tolman and J. D. Clark discuss the colloidal transportation of the various sulphides of copper (*Econ. Geol.*, ix, 559-592). They find that carbon dioxide and hydrogen sulphide, constituents that are common in hypogene vein-forming solutions, are strong dispersive agents for the copper sulphides, and suggest that the distribution of ores within veins may have been conditioned by the escape of these agents. They believe that an experimental determination of the relative dispersion of the different sulphides at a series of temperatures and pressures, will lead to a new advance in our knowledge of the science of ore deposits.

Origin of Coal.—"The Origin of Coal" (U. S. Bureau of Mines, Bull. 38) by David White and Reinhardt Thiessen, is a comprehensive report on the genesis of coal. The hypothesis is maintained that the transformation of peat or lignite to coal of higher rank is effected by regional thrust-pressure, essentially horizontal in direction, acting on and transmitted through the buried coal-bearing strata. From an elaborate microscopic study of coals the conclusion is drawn that "coal is chiefly composed of residue, consisting of the most resistant components of plants, of which resins, resin waxes, waxes, or the derivatives of the compounds composing these, are the most important." A notable feature of the report is the large number of photographic illustrations of microscopic sections of coals, resulting from the devisal of a new technique. (See also *Dynamic and Structural Geology, supra.*)

A treatise of more general scope is that by O. Stutzer, entitled *Kohle (Allgemeine Kohlen Geologie)*. This forms the second volume of *Die wichtigsten Lagerstätten der "Nicht-Erze"* by the same author. It is an attractive volume and parts of it will prove of interest even to those not specialists in coal.

MINERALOGY AND PETROGRAPHY

Charles Palache

Mineralogy.—The year has not been a productive one for this science in America. T. L. Walker in his *Crystallography* has introduced for the first time in an English textbook the use of the gnomonic projection of crystals as employed by Goldschmidt, with the resultant graphic expression of the relations of their forms and symbols. The author is successful in his treatment of this matter save that he has hardly carried it far enough to satisfy some of his readers. The year has seen the appearance of the second volume of Goldschmidt's *Atlas der Krystallformen*, completing the letter C, and the beginning by that author of an independent serial publication for crystallography.

The most interesting development in the science of crystallography is the completed experimental proof of the actual presence in crystals of an atomic structure or space lattice such as has long been postulated by crystallographers. The proof is based on the idea that if such a space lattice be present it should reflect the extremely short waves of X-rays with interference phenomena, in the same way that a pack of parallel plates affects the longer waves of light. The mathematical theory was worked out some two years since by Loue, who obtained as well the first photographic proof of its correctness. Bragg has now succeeded in simplifying the technique of the method by determining the position and intensity of the reflected X-ray by its ionizing effect; and has succeeded in establishing not only the certain existence of the space lattice but its exact form in particular substances, the dimensions of its elements, and the fact that atoms, not molecules, occupy its nodes; and indirectly he obtains the wave length and spectrum of the X-rays employed.

The literature of gem minerals has

been enlarged by an interesting book by G. F. Kunz, *The Curious Lore of Precious Stones*, which is a storehouse of scattered and little known information on the part played by gems in the past and present in folk lore, superstition, divination, religion, symbolism, and many similar fields of human thought.

Petrography. — The most noteworthy book of the year in this field is *Igneous Rocks and Their Origin*, by R. A. Daly, which may be said to be the first extended presentation of a complete genetic theory of the igneous rocks. Much of its contents has appeared in nearly the same form in earlier papers by the author. These are here incorporated in a very convincing and inspiring general view of the processes and products of igneous activity in the earth. While the author terms it an eclectic theory, most of its distinctive points are original. Of the three main parts into which the book is divided, the first considers broadly the facts of composition and distribution in space and time of the igneous rocks; the second presents the proposed explanatory theory of their genesis; and the third outlines the results of applying the general theory to the facts so far determined.

The essence of the theory may perhaps be stated as follows: Assuming a primary gravitative separation of the fluid earth crust into an acid or granitic shell and a basaltic substratum, it is held that all igneous activity since the pre-Cambrian at least has been initiated by injections of the molten substratum basalt into the primitively solidified acid shell. The active agent is the initial superheat of the basaltic substratum working in a contracting earth. Mixtures of the two primary differentiates are effected by what is called magmatic stoping and magmatic assimilation; the mixed or syntectic magmas thus produced have given rise by their further differentiation to the principal igneous rock types; and special weight is given to the effects produced by the assimilation of various types of sedimentary rocks to form extreme or special varieties of igneous products.

In the *Manual of Petrographic Methods*, Johannsen gives for the first time in the English language a comprehensive account of the instruments and methods of petrography, comparable in scope and quality to the new edition of the first volume of Rosenbusch's classic German work. The excellent and numerous illustrations and the very numerous references to original literature add much to the usefulness of the book to both student and teacher.

With this work on methods, Idding's two descriptive works on *Igneous Rocks and Rock Minerals*, and Daly's book, the American student of rocks now has at his command a body of literature of most recent date which is wider in scope than exists in any other language.

EARTHQUAKES AND VOLCANOES

Harry Fielding Reid

Earthquakes.—A very light shock was felt in southern Rhode Island on Nov. 3, 1913. A light shock was reported from St. Stephen, N. B., and Calais, Me., early on Jan. 13, and three shocks were felt in western Maine on the evening of Feb. 21.

The most serious earthquake of the year within the United States occurred in northern New York at 1:31 p.m., on Feb. 10. The shock caused considerable alarm in central and northern New York, and the adjoining parts of Ontario, by throwing down some plaster and by moving some large pieces of furniture. The origin seems to have been near the St. Lawrence River, not far from that of the shock of April 28, 1913, but it was much severer than the latter. It seems to have been felt over an area of about 150,000 sq. miles, including parts of New York, Vermont, Massachusetts, Connecticut, Pennsylvania, and Ontario. On Feb. 14 a shock was felt along the St. Lawrence River for 30 miles below Quebec; it was probably connected with the shock of the 10th.

Light shocks were reported from Niota and Sweetwater, Tenn., at 10:24 and 10:41 p.m. on Jan. 23; and one at 8:20 p.m. on March 6, from Darlington and Florence, S. C. At 3:05 p.m. on March 5, a sharp shock oc-

curred in northern Georgia which was felt over an area of about 30,000 sq. miles, including parts of Georgia, Alabama, Tennessee, North Carolina and South Carolina. A light shock was felt in eastern South Carolina the next evening. Parts of South Carolina and Georgia reported a light shock on Oct. 16, 1913. A very light shock occurred at Madison, Wis., Oct. 7.

A sharp shock occurred in southwestern Colorado on Nov. 11, 1913; it was central near Ouray, where light objects were thrown from shelves; it was sensible over an area of about 7,500 sq. miles. On Dec. 5, 1913, a shock was felt in Arizona and New Mexico. At 10:15 a.m. on May 13, a very sharp shock was felt for some distance along the western base of the Wahsatch Mountains in Utah, probably due to a movement on the great fault there. It was strongest at Ogden, where windows were broken and bricks thrown from chimneys. At Reno, Nev., a sharp shock was felt at 10:17 a.m. on Feb. 18; several shocks on Feb. 20; four on March 1; and one each on April 6 and 24. Although none did any damage, the first and last were strong enough to cause some excitement and apprehension.

A light shock was felt in Redlands, Cal., on June 25. In the region just south and southwest of San Francisco a number of light shocks were felt: at Stanford University on Nov. 20, 1913; at Santa Cruz on March 13; at Santa Cruz, San José, and Santa Clara in the early morning of March 18, and at Stanford University the evening of the same day and again the next morning; at Palo Alto on June 21; at San Francisco on Sept. 4; from Sausalito to Santa Cruz on Sept. 7; and along the southeastern shores of San Francisco Bay on Nov. 8. Light shocks were felt at Eureka, Cal., on Nov. 24, 1913, April 10 and Aug. 14, 1914; and at Vina on Nov. 6; also on the eastern boundary of Oregon on Oct. 14, 1913; at Portland, Ore., on March 22, 1914, felt over about 8,000 sq. miles; about Puget Sound on Dec. 25, 1913; and at Tacoma on Sept. 5, 1914. A number of shocks were felt in the neighborhood of Fairbanks, Alaska, on May 29, and one on June 22. Valdez reports a sharp shock on July 20.

A shock was felt early on Feb. 11 in all the eastern part of Cuba. Kingston, Jamaica, reported light shocks on May 27 and Oct. 14, and Martinique on April 17 and Oct. 3; the last is supposed to have been felt throughout the Windward and Leeward Islands.

A sharp shock was felt in the Panama Canal Zone on the morning of Nov. 13, 1913, and a weaker one on Feb. 10. Much excitement was caused by a fairly strong shock at 10:25 p.m. on March 27, which was felt all over the Zone but did no damage. Two months later, on May 27, at the same hour, a still stronger shock was felt, which did some slight injury in the city of Panama but none to the canal works; it lasted about 35 seconds. Early on May 31 a very light shock was felt. Apparently none of these shocks originated in the Canal Zone.

A serious shock occurred in the Department of Apurimac, Peru, on Dec. 4, 1913; and Caraveli, Peru, which was greatly damaged on Aug. 6, 1913, suffered again severely on Sept. 10 or 11, 1914.

Very light shocks were felt at Hilo, H. I., on Oct. 25, 1913, and at Honolulu on March 29, 1914.

A destructive earthquake occurred on the southeastern slope of Mt. Etna, Sicily, on the evening of May 8. Its center was near the village of Linera, where 100 or more people were killed and about 300 injured. The destruction was limited to a short narrow zone whose area was not greater than two or three square miles. Outside of this area the intensity diminished rapidly. The shock was probably due to a slip on a fault very close to the surface, and was connected with volcanic forces and not with the tectonic forces which cause great earthquakes. Light shocks continued for several weeks, and Etna, Stromboli and Vesuvius became more active.

Volcanoes.—On May 30 Lassen Peak entered into active volcanic eruption. It is the most southerly of the old volcanoes, supposed to be extinct, which surmount the Cascade Range from British Columbia to northern

California, and whose beautiful snow-covered cones are such spectacular objects in the landscape. The old crater of Lassen is filled with débris and its walls are altered by denudation, but it is still easily recognizable. The new crater lies on the north side of the old, and consists of a crack running northwest and southeast; the sides of the crack have fallen in or been blown out, so that the opening on June 20 was about 400 ft. long and 100 ft. wide; by the end of October it was about 900 ft. long and had increased greatly in width. Three new vents opened on the west slope of the mountain on Oct. 16. The activity of the volcano continued during the summer with varied intensity; according to the observations of the U. S. Forest Service, strong outbursts occurred on June 2, 14, July 1, 6, 15-18, Aug. 19, 21, 22, Sept. 7-9, 16, 20, 21, 29, 30, Oct. 17, 22, 23; those of July 18, Aug. 21, Sept. 7-9, 16, 20, 21, 29, and Oct. 22 were the most violent. The earlier eruptions were short, lasting 15 or 30 minutes, but the later ones lasted several hours. The columns of ash and dust thrown up by the eruptions reached, in some cases, altitudes of 11,000 ft. The ejected rock varied in size from pieces two or three feet in diameter to fine dust; all of this material seems to have been blown off the sides of the vent, and none of it was derived from explosions in molten lava; no lava has flowed from the mountain and the only indications of molten rock within it are the "luminous bodies" which are reported to have been hurled into the air on Sept. 29. The larger ejected rocks all fell within a quarter of a mile or so of the vent, but the fine dust was carried several miles by the wind. The latest volcanic eruption in the United States proper, before the present one, took place at Cinder Cone, on the northeast side of Lassen Peak and about 10 miles from the summit. Cinder Cone has been perfectly quiet during the summer. The solfataras and hot springs on the flanks of Lassen have not increased in activity.

Volcanic dust fell at Prince William Sound, Alaska, on June 18, probably due to eruptions of Mt. Katmai to the southwest. Katmai, Shishaldin and Pavlov were all reported to be active.

A very violent eruption of the volcano on Sakura Island, near the southern end of Japan, began on Jan. 12. Slight earthquakes began very early on the 11th and soon became very frequent; in the 24 hours, beginning at noon on the 11th, 403 earthquakes were recorded at the neighboring town of Kagoshima. These shocks, the increase in the activity of hot springs, and the emission of some steam and dust from the volcano led to a general exodus from the island, so that the subsequent loss of life was very small. The eruption began at 10 a.m. of the 12th, reached its greatest violence in the evening and night and then gradually diminished in intensity; the explosive noises were deafening. On the evening of the 14th lava poured out; it came, as did the explosive eruptions, from the southeastern and from the western flanks of the volcano and not from the ancient crater. The lava streams which in places were 300 to 400 ft. thick covered an area of over 23 sq. km. They completely buried several villages and filled up the deep waterway between Sakura Island and the main Kiusiu Island to the southeast. Several other Japanese volcanoes were active during the winter of 1913-14; the more northerly erupted first; and the activity seemed to progress toward the south. (Omori, *Bull. Imp. Earthquake Invest. Com.*, viii, 1-34.)

METEOROLOGY AND CLIMATOLOGY

ROBERT DEC. WARD

The Weather Bureau.—On Jan. 1 the U. S. Weather Bureau began to issue daily weather maps of the Northern Hemisphere with pressures indicated in millibars and temperatures in absolute (C.) degrees. These new maps are printed on the back of the regular morning weather maps of the United States, published in Washington. Beginning with the

January issue, the *Monthly Weather Review* resumed the more or less popular form which it had until July, 1909, since which time it has been mainly a bulky collection of tabular matter. Under the editorship of Prof. Cleveland Abbe the *Review* will hereafter again be an indispensable publication to all workers in the science of the atmosphere. The *Bulletin of the Mt. Weather Observatory*, established in 1907, and devoted to the more technical aspects of meteorology, has been discontinued (with vol. vi). These two changes have brought about a very welcome simplification in the official meteorological publications of the Government.

Free Air and Solar Radiation.—Prof. H. H. Kimball has continued his work on skylight polarization (*Bull. Mt. Weather Obs.*, vi); has discussed the relation between solar radiation intensities and the temperature of the air in the Northern Hemisphere (*ibid.*); and has taken up the meteorological aspects of the city smoke problem (*Mo. Weather Rev.*, xlii). Prof. A. J. Henry has made a further contribution to the study of vertical temperature gradients between mountain and valley stations (*Bull. Mt. Weather Obs.*, vi). The discussion of the free-air data obtained at Mt. Weather has remained in the hands of Prof. W. R. Blair, who has summarized these data for five years (July, 1907-June, 1912), and has studied the diurnal system of convection on the basis of the data for July, 1912-June, 1913 (*ibid.*).

Blue Hill Observatory.—The appointment of Prof. Alexander G. McAdie as director of Blue Hill Observatory, succeeding the late Prof. A. Lawrence Rotch who founded and for more than 25 years maintained this well known meteorological observatory, is an event worthy of note in this record. The *Annals of the Astronomical Observatory of Harvard College* (lxxiii, pt. 1) contain the first report on the activities of Blue Hill since the new director took charge of it. Beginning with Jan. 1 the new C. G. S. units have been used. The volume contains an appreciative biographical notice of the late Professor Rotch, by his successor, to which is appended a list of Professor Rotch's writings; a summary of the Blue Hill data for 25 years, 1886-1910; and a monograph, by Charles F. Brooks, on the ice storms of New England, a subject which has received little attention and for the study of which Blue Hill Observatory presents an unusually favorable opportunity.

Rainfall.—The secular variation of precipitation has been discussed by Prof. A. J. Henry, on the basis of data for 25 years (1887-1911). An examination of the departures by districts as a whole "lends no color to the theory of a cycle in precipitation." The general tendency seems to be toward years of lean rainfall. In none of the 25 years was precipitation in excess of the normal in all districts, and in but one year (1910) was there a deficiency in all districts from the Atlantic to the Pacific (*Bull. Am. Geogr. Soc.*, xlvi). An excellent, clean-cut monograph on the rainfall of California comes as a fitting contribution from Prof. A. G. McAdie at the end of his long term of service as local forecast official in San Francisco. A chart shows the rainfall of California on the basis of 30 years of records, and the monthly distribution at selected stations is shown in a diagram (*Univ. of Cal. Publ. in Geogr.*, i).

Floods.—In a monograph on the Mississippi Floods of 1912, Prof. H. C. Frankenfield has discussed the relative importance of four great floods (1882, 1897, 1903, 1912) and concludes that in amount of rainfall the 1882 flood exceeded the others, but in stage of river, and in duration above flood stage, the 1912 flood excelled (Weather Bureau, Bull. Y, 1913). The floods of 1913, in the Ohio and lower Mississippi valleys have been studied by Prof. A. J. Henry, who has presented his results in a fully-illustrated report (*ibid.*, *Bull. Z.*, 1913).

Tornadoes.—The Iowa - Nebraska tornadoes of Easter Sunday, 1913, have been investigated by G. E. Condra and G. A. Loveland. In the vortex of at least three storms a wind velocity of 200-400 miles per hour was reached. There was least loss of life among occupants of buildings on high points with southwest exposure, and the greatest among those on

northeast slopes, without outlook to the southwest (*Bull. Am. Geogr. Soc.*, xlvi).

Climatology.—A discussion of the climatology of the Panama Canal Zone, by C. M. Saville, may be considered an extension of the work previously done on this subject by Gen. Henry L. Abbot, U. S. A., and A. P. Davis. Those who are seeking information on the climatology and hydrology of the Isthmus will here find abundant material (*Proc. Am. Soc. Civ. Eng.*, xxxix, no. 1). A contribution of unusual importance is the detailed study of the weather and climate of Chicago, by Prof. H. J. Cox and J. H. Armington, which ranks as one of the very few thorough investigations of this character for the United States (Chicago, 1914). A noteworthy study of local climatology is Prof. O. L. Fassig's investigation of the duration of the frostless period in Maryland and Delaware (*Mo. Weather Rev.*, xlii; *Bull. Am. Geogr. Soc.*, xlvi).

Climate and Crops.—Prof. J. Warren Smith has considered the effect of weather upon the yield of corn. The rainfall at the time of flowering of the corn and shortly thereafter (generally, the four weeks beginning the middle of July) is a great factor in determining the success or failure of the crop. It seems possible to give a close estimate of the probable yield of corn by August 10 by careful study of the weather that has prevailed up to that time (*Mo. Weather Rev.*, xlii). Henryk Arctowski has continued his studies on climate and crops in the United States with a discussion of the annual variation of pressure (*Bull. Am. Geogr. Soc.*, xlvi).

Changes of Climate.—One of the most notable publications of the year is that of Prof. Ellsworth Huntington and others on the changes, or "pulsations," of climate within historic times in arid America (Publ. Carnegie Inst. Wash., No. 192). The climates and their attendant effects during the last 35 centuries over an area extending from California to Guatemala are studied, the evidence being based upon the ruins of ancient dwellings, upon land forms, and upon the rings of growth of trees. The latter subject has been investigated by Prof. A. E. Douglass, who contributes a chapter upon it (also see *Bull. Am. Geogr. Soc.*, xlvi). The "corrected" curve of tree-growth shows three long wet periods, which Professor Huntington considers must correspond to three periods of former greater population in New Mexico. A pronounced agreement is found between the climatic curves for arid America and those previously plotted for arid Asia. These climatic pulsations are believed to have had important historical consequences. The Maya civilizations of Yucatan and Central America are believed to have come in dry, cool periods contemporaneous with the moist periods of New Mexico, both being the result of a southward movement of the subtropical anticyclonic belt.

TERRESTRIAL MAGNETISM

R. L. Faris

Magnetic Work on Land.—The general magnetic surveys of the United States, Canada, and India were continued during the year by the governments of these countries. Observations were made in some of the African Colonies. The general magnetic survey of Australia was about completed under the joint auspices of the Australian Government and the Carnegie Institution of Washington. The fourth magnetic survey of England is now in progress under the supervision of a committee composed of members of the Royal Society, the Ordnance Survey and the British Association. In the United States, the Coast and Geodetic Survey made observations at places distributed over 38 states, and continuous observations were made at five magnetic observatories. Land observations, by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, were made in Egypt, Tripoli, Abyssinia, West Coast of Africa, Nigeria, Belgian Congo, Peru, Bolivia, along the Amazon River, Brazil, Australia, and in the Hudson Bay regions.

Ocean Magnetic Work.—The magnetic survey vessel *Carnegie* made a magnetic survey cruise of about 10,-

000 miles in the North Atlantic Ocean, from New York to northern Norway and return by way of Iceland, reaching the high northern latitude of 79° 52′; she was prevented by ice from extending the sea magnetic observations to latitude 80° north as was originally intended. Atmospheric electricity and radioactivity observations were also made with new methods and instruments.

New Instruments.—The combined magnetometer and portable earth inductor mentioned in the YEAR BOOK for 1913 (p. 633) has been tried out and has proved to be a very satisfactory type of instrument. In the closely allied line of work in atmospheric electricity important improvements in the instruments are reported by the Department of Terrestrial Magnetism of the Carnegie Institution. A new form of magnetometer, designed especially to measure small variations in the horizontal intensity of the earth's magnetism was made and tested at the English National Physical Laboratory.

Research and Survey Publications.—A statement of the magnetic work accomplished by the Mawson Antarctic Expedition 1911-1914 is given in a paper by Sir Douglas Mawson published in the *Geographical Journal* for September, 1914. Dr. W. Brückmann (Publ. K. Preuss. Met. Inst., No. 258) describes his recent work in the Swiss Alps for determination of change of the earth's magnetic elements with altitude. In a paper on "Time Measurements of Magnetic Disturbances and Their Interpretation" (*Proc. Roy. Soc.*, April, 1914) Dr. Chree further discusses the time element in the propagation of magnetic disturbances and reaches what seems to him the inevitable conclusion that the phenomenon is "mainly if not entirely due to instrumental or observational causes." The paper on "An Area of Long-Continued Solar Disturbances and the Associated Magnetic Storms" (*M. N. Roy. Ast. Soc.*, June, 1914), by A. L. Cortie, is a continuation of his series of papers on magnetic disturbances and solar phenomena. In his paper on "The Local Magnetic Constant and Its Variations" (*Jour. Ter. Mag.*, xix, no. 3), L. A. Bauer deals further with the relationship between fluctuations of the earth's magnetism and the variations of the sun's activity during the sun-spot cycle, and reaches the preliminary result that for a change of 10 per cent., such as may be observed in the value of the solar constant of radiation, there is apparently a change of about one-thirtieth of one per cent. of its value in the so-called local magnetic constant. The effect was found to be most pronounced in the sun-lit side of the earth. Arthur Schuster (*ibid.*, March, 1914) discusses the question of measuring the horizontal component of the earth's magnetic force by using artificially prepared magnetic fields as standards of comparison; and L. A. Bauer (*ibid.*) also discusses the application of electrical methods for the measurement of the direction and intensity of the earth's magnetic field, mentioning the most recent methods and instruments that have been tried. Magnetic declination charts of Lake Erie and Lake Ontario for 1913 were issued by the U. S. Lake Survey (Bull. No. 23). The magnetic field results obtained by the U. S. Coast and Geodetic Survey have been published (Special Publ. No. 20), and the magnetic observatory results for 1911-1912 at the Sitka, Porto Rico and Tucson magnetic observatories have been issued. S. R. Williams (*Science*, xl, no. 1034) discusses some possible factors in the variation of the earth's magnetic field. C. Chree (*Proc. Roy. Soc.*, no. A 622, Sept., 1914) further discusses the 27-day period in magnetic phenomena.

GEOGRAPHY

PHYSICAL GEOGRAPHY OF LAND AREAS

WALLACE W. ATWOOD

Physiographic Provinces of North America.—The subdivision of North America into physiographic provinces is one of the most important problems before American geographers. Two papers were presented on this subject before the Association of American Geographers at its Prince-

ton meeting in December, 1913, and a special round-table discussion of this same subject was conducted at the meeting in Chicago in December, 1914. The most fundamentally sound basis for discussing the geography of North America is by provinces which are physiographic units. The importance of determining what boundary lines should be generally accepted confronts the research men in physical geography and all writers attempting to present in their proper settings their studies of individual areas. The problem is also confronting those teaching the elements of geography in the normal school and even in the elementary school. The students of plant and animal ecology will also find, in many instances, that the physiographic provinces and subprovinces will serve as the best units in the study of the distribution and field relations of plants or of animals. Most modern textbooks on physical geography contain maps of the United States and North America, subdivided into geographic provinces, but these maps do not agree.

The most rational and satisfactory basis for drawing boundary lines of physiographic provinces is geologic. Most distinct changes in topography are due to changes in geologic structure or formations, but there are many portions of the continent which for convenience should be treated as distinct provinces but which do not have on all sides distinct topographic breaks. The west margin of the Appalachian plateau is poorly defined; so also the eastern margin of the Great Plains. The subdivision of the great plateau country, from British Columbia southward into Mexico, is a much disputed problem. The subdivision of this plateau is by some based on geologic structure, by others on drainage basins. These and many similar questions are arousing constant disputes which should lead in the end to a generally accepted subdivision of the continent into physiographic provinces and subprovinces.

Physical Geography and Economic Geology.—For more than a quarter of a century the attention of the students of physical geography has been largely given to the development of principles. Many excellent pieces of field work have been done in the study of the physiography of selected areas, but, in a sense, the science has not yet become an applied science. During the past field season a special investigation was carried on by the writer, under the auspices of the Shaler Memorial Fund, on the bearing of the physiographic development of a region upon the secondary enrichment of the ores in that region. The localities selected for study were Butte, Mont., and Bingham Canyon, Utah. In each of those localities mining development work has progressed so far that full data were available regarding the zones of oxidation and secondary enrichment. The ground-water table, which must change during each period of erosion, is generally recognized as an horizon at and below which secondary enrichment takes place. The shifting of the ground-water table is so related to the development of the topography that it would seem that the careful physiographic analysis of the topography would throw light upon the periods of secondary enrichment and the horizons at which secondary enrichment may have taken place. It is evident from the results of this investigation that the work should be carried on at several other mining camps, for it appears that a careful physiographic analysis of the regions where great mineralization has taken place may lead to important suggestions bearing upon the development of such properties. Careful physiographic studies will always prove of immediate practical value in problems associated with placer mining, and in the search for clays, sands, and gravels used as building materials.

Atlas of Land Forms.—Part I of the first series of plates in the *Atlas of Land Forms* (*Atlas photographique des formes du relief terrestre*) has been issued and distributed. In this part there are eight excellent plates chosen to illustrate the land forms produced by rock disintegration and the action of gravity. These plates were selected from a vast number of subjects submitted by members of the international commission appointed by the ninth International

Congress of Geographers (*A. Y. B.*, 1913, p. 634). This commission was directed to coöperate in the preparation of the most comprehensive atlas of relief forms of the earth that has ever been prepared for publication. The burden of the work has fallen upon the three members of the executive committee, Professors Jean Brunhes. Emm. de Martonne, and Emile Chaix, and to these men much appreciation and praise are due for the excellency and attractiveness of this first number.

Each plate is a phototype printed on special paper 10 by 13.3 in. It is accompanied by a description published in three languages, one of which, in each case, is English. These plates and their descriptions are issued on separate sheets, so that they may easily be made of immediate and permanent educational value in the laboratories of geography and geology. The completed atlas will contain ten series of six parts each. Each series will contain from 45 to 48 plates, so that the atlas will include 450 to 480 plates and from 1,800 to 1,900 pages of descriptions, illustrated with a profusion of maps and diagrams.

The general plan of the atlas includes the following subjects:

1. Forms produced by disintegration and the action of gravity. Mechanical and chemical disintegration; rock waste, land slides, etc.
2. Elementary forms produced by erosion by running water. Ravining, erosion in swirls, torrents, etc.
3. Complex forms produced by erosion by running water. Gorges, valleys; maturity more or less advanced; successive cycles.
4. Forms affected by the character of the rocks. Massive, slaty, incoherent, permeable and soluble rocks.
5. Forms produced by erosion of rocks of various structures. Surface features associated with folding and faulting; epirogenic movements.
6. Forms connected with glacial action. Existing glaciers, erosion and deposit; ice age.
7. Forms of desert regions. Wind erosion; dunes, etc.; complex desert forms.
8. Coastal forms. Simple forms due to erosion and accumulation; changes of shoreline.
9. Volcanic land forms. Accumulation: cones, lava flows, etc.; forms produced by denudation.

International Map of the World.—As yet but one sheet of the International Map of the World on the scale of 1: 1,000,000 has been issued by the United States; that is of the Boston Bay district, described as K-19. It is expected, however, that sheet J-10 of San Francisco and vicinity, and possibly I-10, which will be known as Point Conception, just south of the San Francisco sheet, may be published in time for the Panama-Pacific Exposition. The following foreign sheets have been issued: Constantinople, North K-35; Scotland, the Highlands, North O-30; the Hebrides, North O-9; Kenhardt, South H-34; Paris, North M-31; Inhambane, South F-36; Roma, North K-33. The index map of the United States for the International Map of the World includes 56 sheets. This index map has been published by the U. S. Geological Survey. Some of the sheets extend somewhat beyond the national boundary, including parts of Canada, Mexico, and the bordering oceans. (See also *Cartography, infra.*)

Transportation of Débris by Running Water.—During the year there appeared the results of many years of careful experimentation conducted by G. K. Gilbert to determine the laws which control the transportation of débris by running water (U. S. Geol. Surv., Prof. Paper 86). Material is transported by streams in part in solution, in part in suspension, and in part by being swept along the channel bed. The material in solution may be sampled, and the total amount carried by a stream estimated. So also that which is carried in suspension may be readily sampled, and the total amount carried estimated. There is a large amount of data available as to the amount of load carried by streams in solution and in suspension. The bed load is, however, inaccessible, and we have been without definite information as to the amount thus transported. In the conduct of Gilbert's experiments the slope of the bed of an artificial channel, the amount of discharge, and the coarseness of the materials, were varied one at a time, and the laws which control the move-

ment of the bed load were formulated. The report is in part necessarily mathematical, and has real significance to the student of physical geography, for the laws may, with some qualification, be applied to natural streams. It is of immediate practical value to engineers engaged in handling material in sluiceways.

Geographical Investigations.—Isaiah Bowman has just finished his work on the geographic results obtained on the Yale Peruvian Expedition of 1911. His report will be published by the National Geographic Society. His studies have been in part on the physical geography of the regions visited, but in part on the human geography of Peru. The present writer has continued during the past year a study, under the auspices of the U. S. Geological Survey, of the physiographic history of the San Juan Mountains of Colorado. His studies in that mountain range have now been extended over four field seasons, and the work will probably necessitate at least three more seasons in the field. Herbert E. Gregory is working up the results of a number of seasons of field work in the Navajo country of Arizona and New Mexico. He is also at work on the results of the Yale Peruvian Expedition of 1912. Each of these reports will contain contributions to physical geography. W. M. Davis has conducted during the year, under the auspices of the Shaler Memorial Fund, an investigation of the coral islands in Australasia. M. R. Campbell has issued a booklet on Glacier National Park, which has included much material of interest to the geographer. J. W. Goldthwait has presented, in a bulletin of the Canadian Geological Survey (*Summary Rept.*, 1914) a portion of his evidence of coastal subsidence near New Brunswick. He has accumulated data during the last two field seasons in the study of the physical geography and glacial geology of Nova Scotia, which will also be published by the Canadian Geological Survey.

Coöperation Between Geographical Organizations.—The first joint meeting of the American Geographical Society and the Association of American Geographers was held in New York on April 3 and 4. Each of the societies had agreed to a plan of coöperation which has for its especial purpose the promotion of research work in geography. Ten carefully selected papers were presented at this meeting, and ample time for discussions was allowed. The most notable paper in the programme was presented by Prof. Frederick J. Turner, on "Geographic Influences in American Political History."

OCEANOGRAPHY

G. W. Littlehales

Trans-Atlantic Investigation Cruises.—In furtherance of the systematic hydrographical and biological investigations of the whole of the Atlantic Ocean, which have been urged as among the most important scientific and practical tasks of the future, it has been planned that the vessels sent by foreign governments to attend the formal opening of the Panama Canal in 1915 shall be incidentally employed in taking extensive observations from Europe to America for the purpose of providing simultaneous vertical sections of the distribution of temperature and salinity along different routes across the ocean.

Wave Dimensions.—An analysis of the reports received by the Hydrographic Office from observers in the vessels of many nationalities voyaging in the North Atlantic Ocean has shown that, in gales and hurricanes, the waves in the open ocean range in height from 10 to 60 ft., being on the average but little more than 20 ft. in height from hollow to crest and rarely reaching the height of 50 ft.; and that, as to length, the shorter waves measuring between 100 and 200 ft. greatly predominate, with an average length from crest to crest not far from 180 ft. but sometimes reaching the length of 400 to 500 ft. and very rarely exceeding 900 ft., although one instance is recorded during the last four years of a wave 1,300 ft. long and 80 ft. high.

Atlantic Ocean.—The benign advances which are ascribable to a recognition of the terminal influences of the Gulf Stream in Scandinavia, where the variations of the climate and the abundance of the fisheries

have been predicted by the volume of water and the quantity of heat brought by the pulsations of the Gulf Stream drift, in the form of sub-surface boundary waves, from the Atlantic Ocean over the separating submarine sills into the Norwegian Sea, have stimulated oceanographical investigations in the West Indian region at the source of this Stream. At the oceanographical laboratory founded at Dry Tortugas, Fla., by the Carnegie Institution of Washington, there have been commenced, by the aid of the steamer *Anton Dohrn*, a series of hydrographical and biological observations at this fountain head of oceanography. In a higher latitude on the American side of the Atlantic, where the warmth of the Gulf Stream waters contend for mastery with the waters of a low-temperature origin, the United States Bureau of Fisheries and the Museum of Comparative Zoölogy of Harvard University have jointly undertaken the task of ascertaining the physical and biological characteristics of the Gulf of Maine. Annual returns in the schooner *Grampus* have been made since 1912 to fixed stations for the purpose of measuring, at the surface and in the depths, the temperature, the salinity, and the currents, and also of making collections of the plankton. The fact that waters from diametrically opposite origins are borne thither by the cold coastal current and the Gulf Stream make the study of this region of importance both on account of the advancement that it may bring to oceanography and the happy influence that it may have upon the development of the considerable fisheries existing there. Prof. H. B. Bigelow, who has directed the cruises of the *Grampus*, appears already to have established that, contrary to former belief, the waters of the Gulf of Maine owe their low temperature and weak salinity to the discharge of rivers, including the St. Lawrence and its tributaries, and not to any connection with the Labrador Current. Bigelow and his associates have commenced the study of the correlation between the seasonal and geographical distribution of the most important elements of the plankton and the physical characteristics of the waters in which they live, and the search to determine the factors which influence their periods of reproduction and their migrations.

The steamers of the Revenue Cutter Service, employed in the international patrol for the safety of navigation in the ice fields of the Grand Banks of Newfoundland, have engaged in the scientific exploration of the Labrador Current.

Pacific Ocean.—On the Pacific Coast the steamer *Alexander Agassiz*, fully equipped for trawling, sounding, and fishing, and for measuring the temperature, the salinity, and the current, as well as the penetration of light, and for collecting specimens of the water from all depths, has been employed in conducting researches along the coast of California, under the auspices of the Marine Biological Station of San Diego.

CARTOGRAPHY

W. L. G. Joerg

Books and Articles.—Among recent general works may be mentioned A. Hinks' *Maps and Survey* (Cambridge, 1913), which traces the growth of a map from the original survey to the final printing. A second edition (London, 1913) has appeared of Col. C. F. Close and Capt. E. W. Cox's standard *Text Book of Topographical and Geographical Surveying*. Its authoritative references to the various surveys of the British Empire make it of special value to geographers. M. I. Newbigin's *Ordnance Survey Maps: Their Meaning and Use* (Edinburgh, 1913) is a concise key to the interpretation of the British topographic sheets. A similar service is performed for the German plane-table sheets, 1:25,000, by M. Walter's three booklets (*Geographische Bausteine*, nos. 1, 4 and 8, Gotha, 1913-14). An excellent paper by Capt. H. G. Lyons on "Relief in Cartography" (*Geogr. Jour.*, xliii, 233-248, 395-407) deals with the various methods of representation of this map element, at the same time the most important and the most difficult to render properly. With his usual incisive critique H. Wagner exhaustively discusses the important question of scale ("Der Kartenmassstab: Historisch-kri-

tische Betrachtungen," *Zeitsch. Gesell. Erdkunde zu Berlin*, 1914, pp. 1-34, 81-117; not completed). The recent rapid rise of cartography in Italy is well illustrated by A. Dardano's *Cartografia: Elementare Pratica* (Novara, 1913). This is reprinted from *La Geografia*, a periodical recently founded by the map publishing house of De Agostini in Novara. A corresponding undertaking for Austria is the *Kartographische und schulgeographische Zeitschrift*, now in its third year, published by the firm of Freytag & Berndt in Vienna. Both journals emphasize school cartography. The compilation and printing of that indispensable adjunct of geographical teaching, the school wall map, is dealt with entertainingly by H. Haack in his "Wie eine Schulwandkarte entsteht" (*Geogr. Bausteine*, no. 2, 1913).

International Map of the World.—The year has notably advanced this important undertaking. In view of the discrepancies which had arisen in the interpretation of the regulations of the first international conference (London, November, 1909), a second conference met in Paris in December, 1913, to standardize the production of the map. Attended by the delegates of 35 countries, as against 11 at the first conference, its decisions gained added weight. The new regulations relate mainly to the representation of relief, the symbols for towns, nomenclature, and the title of the map. Certain contours were made obligatory, thereby insuring the proper representation of relief, and the color scheme was considerably modified and expanded. A relative, and not an absolute, classification of towns was adopted. The French name, *Carte Internationale du Monde au 1,000,000e*, has been adopted as the official title. But the most important result of the conference was the creation of a permanent central office, which, while having no executive authority, will serve as a general clearing house for the undertaking. Its headquarters will be at the Ordnance Survey in Southampton, England, with an auxiliary office in London.

Maps of the United States.—Of prime importance is the new edition (1913) of the contour map of the United States in three colors on the scale of 1: 2,500,000 published by the U. S. Geological Survey. This is the best current general map of the United States published by a government bureau. Its special value lies in its representing relief, an element which is generally lacking or inadequately represented on available non-official American maps of the United States. Contours are used, with an interval of 500 ft. below 2,000 ft. and of 1,000 ft. above that elevation.

An invaluable aid is the series of black-and-white base maps of the various states on the scale of 1: 500,000 in course of publication by the U. S. Geological Survey. These maps represent rivers and lakes, county and township boundaries, railroads and towns, but no relief. So far the following 26 states have been issued: Ala., Ark., Del., Ga., Ill., Ind., Ia., Md., Mass.-R. I.-Conn. (one sheet), Mich., Minn., Miss., Mo., N. J., N. Y., N. C., O., Pa., S. C., Tenn., Vt., Wash., Wis., Wyo.

Polar Maps.—The results of the Australasian Antarctic Expedition are incorporated on three maps (*Geogr. Jour.*, September, 1914): one, a general map, 1 : 15,000,000, showing the field of operations, which extended over no less than 63 degrees of longitude (89°-152° E.) along the coast of the Antarctic Continent south of Australia; the other two, detailed maps of King George V Land and Queen Mary Land, at the eastern and western limits, respectively, of the area explored.

The route of the Russian Hydrographic Expedition under Captain Vilkitski, on which new land was discovered north of Cape Chelyuskin, Siberia (Nicholas II Land), is well represented on Plate 31, 1: 15,000,000, of *Petermanns Mitteilungen* for April, 1914.

B. Hantzsch's survey of the eastern shore of Fox Basin from 66° 40′ to 68° 45′ N., made on his ill-fated expedition to Baffin Island in 1909-1911, is published in the *Mitteilungen des Vereins für Erdkunde zu Dresden* (ii, no. 7). For the remaining unsurveyed 200 miles of this 350-mile stretch of coast along the largest island of the American Arctic archipel-

ago, this still leaves us dependent on the crude maps made for Hall by his Eskimo informants on his second Arctic expedition in 1868.

Saharan Maps.—A map that represents an explorer's ideal preparation for his work is E. Banse's map of the Libyan Desert, 1: 7,500,000, showing our present state of knowledge of this region (*Petermanns Mitt.*, lx, first half, pl. 23). It indicates at a glance the extent and quality of our information with regard to this, the largest continuous unexplored area left in Africa, and thus afforded the author an intelligent basis for his proposed expedition.

The admirable work done in the exploration of the Sahara by French army officers is well summarized, for the region shown, on the general map entitled "*Esquisse orographique du Sahara central*," 1 : 4,000,000, by Captain Nieger (*La Géogr.*, xxix, pl. 1). While prepared mainly in connection with the proposed trans-Saharan railroad, it embodies all previous knowledge. The inclined plateaus terminating in escarpments, or cuestas, which characterize the central Sahara, contrary to former belief, which conceived of the Sahara as one vast sand desert, are especially well brought out.

Maps of German New Guinea.—The results of the recent important explorations in the drainage area of the Kaiserin Augusta River are summarized on a map on the scale of 1 : 1,500,000 (*Mitt. aus den deutschen Schutzgebieten*, xxvii, no. 1), while the detailed survey of the river itself by L. Schultze Jena is published on the scales of 1: 100,000 and 1: 200,000 (*ibid.*, *Ergänzungsheft*, no. 11).

Economic Map of Russia.—A notable map, both for its content and for its methodological significance, is Semenov-Tian Shanski's "Commercial and Industrial Map of European Russia," 1: 1,680,000 (in Russian; published by the Ministry of Commerce and Industry, St. Petersburg). The map, which applies to conditions existing in 1900, represents with great minuteness the economic regions of the country, no less than 1,065 districts, based on the nature and value of their trade and manufactures, being distinguished. These 1,065 districts are grouped together into 75 economic provinces, and these again into 12 major economic regions. Six types each are established for trade and manufacturing; each type is subdivided into seven grades according to the value of the products in roubles per capita. Cities are similarly differentiated. It is thus possible, for instance, to see at a glance that, in 1900, the region about Archangelsk on the White Sea mainly produced lumber to the value of 100 to 500 roubles per inhabitant, while the town itself had a trade valued at 5,000,000 to 10,000,000 roubles, divided into four equal parts, namely, lumber, agricultural products, fisheries, and alcoholic beverages. The map is a veritable mine of information and is an admirable example of the synoptical value of the cartographic method of presentation, for it contains the greater part of the material laid down in a report of 13 volumes which it accompanies. An abridged edition of the map on the scale of 1: 7,500,000 has been published in German (*Petermanns Mitt.*, lix, second half, pl. 36).

Philips' Mercantile Marine Atlas.—Suggestive charts and tables in the new, fourth edition of Philips' *Mercantile Marine Atlas* (London, 1913) show the influence of the Panama Canal on world trade routes. The bulk of the volume consists, as heretofore, of excellent large-scale charts of the oceans showing all existing steamship routes, with distances, supplemented by physical maps of the oceans and the surrounding lands.

EXPLORATION AND GEOGRAPHICAL RESEARCH

CYRUS C. ADAMS

Tendencies in Geographical Research.—In the preparation of geographical texts and textbooks there is a growing demand that the relations between man and his geographical environment shall, more than ever, be emphasized. In other words, anthropogeography is beginning to hold the first place in geographical study and culture. A good illustration of this tendency is given in Isaiah Bowman's recent analysis of the topics presented at the annual meetings of the

Association of American Geographers during the first ten years of its existence. He found that, at the first three meetings, there was a large preponderance of physiographic papers; in the next four years, physiography and anthropogeography were alternately in the lead; in the three following years, anthropogeography led, owing chiefly to the growing number of students devoted to the life side of the science; at the Princeton meeting, in 1914, a still larger proportion of the papers dealt with phases of human geography. Dr. Bowman said that future programmes would probably show a still stronger tendency in this direction.

Wireless Telegraphy in Longitude Determination.—It has been shown within the past few months, both in Asia and in South America, that wireless telegraphy can be used to great advantage in determining longitudes. Dr. de Filippi and his party, who are making scientific studies in the Karakoram Mountains, have repeatedly registered wireless time signals transmitted from the Lahore station. The practicability of using this method in the field, even though lofty ranges of mountains intervene, is thus assured. The Brazil-Bolivia Boundary Survey, within a few months, has been carrying longitude by wireless telegraphy into the heart of the Amazon forests.

Cultivation and Climate.—In a recent address before the Royal Colonial Institute of London F. B. Vrooman has shown that it has been proved in western Canada that the continued cultivation of the soil has greatly diminished the danger of early killing frosts. A generation ago, the Manitoba farmer was always liable to see his young field crops blasted by summer killing frosts. When, however, large areas come under the plow, with a powdered soil and a black surface to absorb heat, this danger is minimized because the storage of heat in the long day is, at night, radiated into the cool air, generally at a temperature above the frost line. To this extent, a change of climate has been produced far to the north, adding largely to the area of wheat lands. Sir Charles P. Lucas, president of the section of Geography of the British Association, at its meeting in August last, also alluded to this factor in the considerable extension to the north of practical farming in Canada.

Africa.—Captain Jakobs of the German naval vessel *Möwe* spent six weeks late in 1913 studying Lake Tanganyika in Central Africa. The results of his soundings were wholly unexpected. He proved, as far as our present knowledge goes, that Tanganyika is deeper than any other fresh water lake excepting Baikal in Siberia. The greatest depth he reached was 4,189 ft. The greatest depth yet discovered in Lake Baikal is 4,997 ft. Halbfass, not long ago, in his collection of data on lake exploration, accepted 2,625 ft. as the maximum depth of these bodies of water. The surface of Tanganyika stands 2,559 ft. above sea level, and the lake must be regarded as occupying one of the great crypto-depressions, for its floor sinks to 1,539 ft. below sea level. The area of Tanganyika is only four-sevenths that of Victoria Nyanza, but its water content is supposed to be greater than that of Lake Victoria, whose greatest known depth is 270 ft.

The German enterprise of constructing a railroad across German East Africa from Dar-es-Salaam, on the Indian Ocean, to Lake Tanganyika at Kigoma was completed on Feb. 2. The line is 777 miles long, and trains reach the lake from the sea in two days. In recent years caravans have made the journey in 42 days, but in exploratory times several months were required for the journey. The war in Europe has probably put an end to railroad building in Africa for a time; but when the war began the Belgians were building a line from the upper Congo, through the Lukuga valley to the west coast of Tanganyika. When that line, 165 miles long, is completed there will be unbroken steam connection by rail, lake and river from the Indian Ocean to the mouth of the Congo, on the Atlantic. In a generation nearly 2,500 miles of railroad have been built in Africa and the prospects in the first part of 1914 were that at least 5,000 miles would be constructed within the next five

years. The French, for example, had completed their splendid explorations and survey for their railroad across the Sahara from Oran in Algeria, forking on the southern edge of the desert, one branch going southeast to Lake Chad and the other southwest to the navigable Niger, connecting by river and rail with Timbuktu and the Atlantic coast in Senegal.

North America.—The New York Academy of Sciences, with the cooperation of other institutions, has begun a scientific study of Porto Rico along the lines of geology, zoölogy, botany, anthropology and oceanography. The geological study was begun in the summer by Prof. Charles P. Berkey of Columbia University. The work in zoölogy was begun in January and Professor Crampton completed a reconnaissance of the island in order to map out the different ecological regions for further intensive study. The results of work already done by members of the scientific staff of the New York Botanical Garden will be used by them in further research in the island. The investigations in anthropology and oceanography have not yet been started. The committee in charge is composed of Professors James F. Kemp, Franz Boas, C. L. Poor, and H. E. Crampton.

The hydrographic work carried on for the past three years in Hudson Bay and Strait by the Canadian Department of Naval Service gives a fair idea of the general ice conditions and of the period during which navigation can be carried on with comparative safety. There seems to be no difficulty in navigating the strait and bay in July and August and navigation is sometimes feasible in the last two weeks of June and early in September. The impressions gained as to the climate of James Bay and the agricultural possibilities of the country around it were favorable, on the whole.

Archdeacon Stuck, who ascended Mount McKinley in 1913, was able to substantiate the claim of the miners McGonogall and Anderson to having ascended the mountain in 1910, though the summit reached by them was not the higher peak but the secondary summit to the north. Stuck's party saw the flagstaff which the miners had erected.

The second ascent of Mount Robson, the highest of the Canadian Rockies, was made on July 13, 1913, by Conrad Kain, a Swiss Alpine guide. He says Mount Robson will always be a risky climb on account of the avalanches, which are more numerous in the Rockies than in the Alps, because the dryness of the atmosphere leaves the snow powdery and unpacked.

The U. S. Coast and Geodetic Survey has issued during the year a "Summary of Survey of Oyster Bars of Maryland," by C. C. Yates, giving a history of the oyster industry in that state and a statement of its prospects. The report says that over 200,000 acres of natural oyster bars, as a result of the survey, are now reserved for the use of oystermen; and they will be so conserved and developed that the oyster industry of Maryland will be based on an annual production of 20,000,000 bushels of oysters where now it is barely 5,000,000.

The completion of the Grand Trunk Pacific Railroad gives Canada its second trans-continental line and opens to development a large area of new agricultural lands further north in British Columbia. All the farm lands for miles around Fort George, on the Fraser River, have been taken up. A number of agricultural experiment stations have been opened under the direction of the principal station at Prince Rupert, the new seaport and Pacific terminus of the railroad. It is expected that the railroad will be the outlet, through Prince Rupert, of a large part of the wheat of western Canada, which will reach Europe through the Panama Canal.

South America.—Theodore Roosevelt's exploration of the Rio da Dúvida ("River of Doubt"), in Brazil, was an excellent bit of pioneer research. This tributary of the Madeira, rising near the western branch of the headwaters of the Tapajoz, and flowing a little west of north for nearly or quite 900 miles, was traced in its entirety from source to mouth, late in 1913 and early in 1914. Most of it had never been seen by explorers before, though Colonel Rondon

had discovered its headwaters and rubber collectors knew its lower course; but no part of the river had been surveyed and even its lower section was not correctly indicated on any map. The river, longer than the Rhine and carrying, perhaps, three times as much water, may prove to be the longest tributary of the Madeira. The journey was beset with great difficulties. Six of the canoes were lost in the rapids, the portages around the obstructions were long and arduous, the party was soon on short rations, and much of the equipment had to be abandoned. Colonel Rondon made a survey of the entire route. The exploration shows where the Brazilian highlands end and the Amazon lowlands begin in this region; also geological, zoölogical and botanical results of much interest, which will be described in the scientific reports.

Hamilton Rice, in two expeditions (1907-8 and 1912-13), has made notable contributions to the arduous task of continuing the exploration of the northwest part of the Amazon basin, which has been one of the largest unknown areas of South America. In 1907-8 he worked from Bogota to the source of the Uaupés River and descended this large stream to its junction with the Rio Negro tributary of the Amazon. In 1912-13 he ascertained the sources and explored the entire courses of the Inirida tributary of the Orinoco and of the Içana affluent of the Rio Negro. He has thus gone far toward establishing the region of the waters parting in the northwest between the Orinoco and the Amazon drainage systems.

Europe.—Two descents into the crater of Vesuvius have recently been made. The first was by Frederick Burlingham, who carried apparatus for procuring kinematograph films. He said the danger of the descent is hardly greater than that constantly faced by Alpinists. The greatest peril is that from avalanches and falling stones, as the slopes are in a state of very unstable equilibrium. There is also some risk of asphyxiation when the wind disturbs the regular ascent of the main column of smoke. He noticed several solfataric fumeroles, vents connected with the volcano and emitting heated gases. From the lowest abyss clouds of incandescent pink smoke poured out with a hollow roar. Scientific curiosity took Storz, the other explorer, into the crater. He stood not far from the edge of the crater opening and, as his iron cable slipped easily into it, he inferred that its wall is practically perpendicular for at least 200 ft. from the top. Gaseous ebullitions were, from time to time, violently expelled. The temperature rose very rapidly within the opening. At 30 ft. below it was about 334° C.

New Guinea.—Dr. Carl Lumholtz left Java in June with a party of Dyak carriers to begin his exploration of the almost unknown highlands leading up to the north side of the great snow mountains. All work among these mountains has thus far been done from the southern approach. The year has seen little exploration in New Guinea, but the results of earlier work, particularly in the basin of the Kaiserin Augusta River, in Kaiser Wilhelm Land, and on the southern coastal plain of Dutch New Guinea, are now being published (see also *Cartography, supra*). Much exploration remains to be done among the ranges extending across New Guinea, from east to west, forming the backbone of the island. The snow range of Dutch New Guinea is the western extension of this mountain wall; its excessive steepness and the depth and narrowness of its ravines make study very difficult. The Government of Australia is selecting sites for government stations on the Fly River and in other parts of the territory of Papua which are still little known, to put an end to cannibalism, headhunting and other horrors.

Arctic.—The Stefansson expedition, fitted out by the Canadian Government with three vessels, a good scientific staff and large supplies, which went north in 1913 for research in the Parry Archipelago and the ocean west of it (*A. Y. B.*, 1913, p. 641), has met with great reverses. It reached Alaskan waters in the worst ice season known for many years. With great difficulty the vessels finally forced a way to the west of Point Barrow. On Sept. 20 the *Karluk* was

believed to be frozen in for the winter, about 15 miles north of the Colville River. She had on board most of the expedition and the larger part of the stores. Stefansson left her to hunt on shore, when, on Sept. 23, a fierce gale drove the ice and the imprisoned *Karluk* to the west and she was not seen again in Alaskan waters. She drifted to the northwest and southwest for 110 days and was finally crushed in the ice to the northeast of Wrangell Island. A large quantity of supplies, placed on the ice, was loaded on sledges and the retreat to Wrangell Island began. Two parties of four men each never reached the island. Fifteen persons, including Captain Bartlett, commander of the *Karluk*, reached Wrangell Island, probably the first human beings to set foot on it. Bartlett, with a seaman and an Eskimo, set out across the sea ice for Siberia on Feb. 18, and three months later reached St. Michael, Alaska, bringing news of the disaster. On Sept. 14 the ten survivors on Wrangell Island were brought to Nome, Alaska, having been rescued by the gasoline schooner *King and Wing*, the only vessel that has ever reached the island; three men had died on the island.

Stefansson meanwhile had been bravely trying to carry on his work with his crippled force. The mapping of the Mackenzie delta and the sounding of its channel were carried on and the Herschel Island River was explored. On March 22 Stefansson, with a supporting party, started north by sledge over the sea ice from Martin Point, Alaska, to determine the edge of the continental shelf and to look for new lands. He found the edge of the shelf on April 16 and there sent the supporting party back, while he and two companions, with a good sledge that could be turned into a boat, provisions, two rifles and plenty of ammunition, kept on north. He had been killing seal to feed his dogs. He thought that, possibly, ice drift might take him west to Banks Island, where he could live on the country till relief reached him. Two vessels that were on that coast later did not find him there, and no news of him has come from Alaska. He is a man of unusual resource and there is no reason, as yet, to believe that the worst has befallen him. (See also XXVI, *Anthropology and Ethnology.*)

Captain Amundsen had planned to begin his four or five years' drift in the Arctic Ocean in the summer of 1914. The *Fram*, however, waited in vain for the opening of the Panama Canal and lost further time while being repaired at a Montevideo dry dock, so that she could not reach San Francisco before July. Amundsen accordingly announced the postponement of his Arctic enterprise until 1915. It is expected that the *Fram* will start early in the year for San Francisco and the Arctic Ocean *via* the Panama Canal.

The Siberia Company in 1913 sent the Norwegian steamer *Correct* through the Kara Sea, north of Siberia, to the Yenisei River, freighted with merchandise for the Siberian market. The purpose was to reopen, if possible, the Kara Sea commercial route between Europe and Siberia. In the course of some years about 100,000 tons of goods had been carried by this route. The *Correct* reached the Kara Sea on Aug. 5, was frequently impeded by ice, but on Aug. 31 dropped anchor in Dickson Harbor at the entrance to the Yenisei River. Here three river boats were waiting with Siberian produce worth $125,000 to be transferred to the *Correct;* the river boats took on the European merchandise and on Sept. 10 all the vessels left Dickson Harbor. The *Correct* arrived at Grimsby, England, on Sept. 29 after a very successful and profitable round trip. Dr. Nansen made the journey both ways. He reports in the *Geographical Journal* (May, 1914) that to give this navigation a firmer foundation in future it will be necessary to acquire a more complete knowledge of ice conditions in the Kara Sea during the summer and autumn. He suggested the maintenance of several small vessels equipped with wireless telegraphy; or, better still, aeroplanes with bases at petrol stations, which could carry accurate information once a week to Yugor Strait as to the distribution of ice and open water. The Russian Government decided to create a regular pilot ser-

vice in these waters, to develop wireless stations and to supplement them with aeroplane and other auxiliary service.

Antarctic.—Sir Ernest Shackleton's expedition was the only Antarctic enterprise that was able to start for south polar waters. His main party, numbering 15, left England on Sept. 18 to join their exploring vessel, the *Endurance*, which was to await them at Buenos Aires. They sailed from that port on Oct. 27 for South Georgia, where they would coal, then enter Weddell Sea, south of the Atlantic, and make their winter camp on the coast of Prince Luitpold Land, the part of the Antarctic continent discovered by Filchner in 1912. Shackleton's plan is to cross the continent from Weddell Sea to Ross Sea. He will strike out for the South Pole and from there to Beardmore Glacier, Ross Sea. This glacier was a part of the route both of Shackleton and Scott on their South Pole journeys from and to McMurdo Sound. The second part of Shackleton's expedition was expected to start on the ship *Aurora* from some Australian port, about Dec. 1, for McMurdo Sound, for the purpose of forming a supply depot at the foot of Beardmore glacier for the transcontinental party when it reached this point on its way to McMurdo Sound. The Shackleton expedition is finely equipped for scientific work, and, if good fortune attends it, it will doubtless obtain much new information.

Prof T. W. Edgeworth David, of the University of Sydney, summing up the more important phases of the knowledge of the Antarctic Continent we have gained thus far, says that its area is now estimated at over 5,000,000 sq. miles. Its mean altitude, the highest of the continents, has been calculated at about 6,000 ft., including its ice cap. If this were removed, the mean altitude would be reduced by, perhaps, 1,000 to 2,000 ft. The coast line, including the seaward boundary of thick fast ice, is probably about 14,000 miles long. A large part of the coast line, however, is not yet known. The greatest thickness of the ice yet measured is that of the Drygalski ice barrier tongue, about 2,000 ft. Perhaps the inland ice is thickest where it is dammed back against the western side of the Ross region horst [mountain range barrier], where it may be 5,000 ft. thick. Where there is a continuous downward slope of the rock surface on which the ice rests the thickness of the inland ice probably does not exceed 2,000 ft.; but where there are sags in the ice surface, so as to impound the ice, its thickness may be much greater. In meteorology there is a grand field for research. With a more detailed knowledge of the oceanography, glaciology and meteorology of Antarctica, the whole cycle of weather conditions, not only in the southern hemisphere, but even north of the equator, will become much clearer.

XXIV. CHEMISTRY AND PHYSICS

CHEMISTRY

INORGANIC AND PHYSICAL CHEMISTRY

ARTHUR WESLEY BROWNE

Water.—The compressibility of ice between 100 and 500 megabars at —7.03° C. has been investigated by T. W. Richards and C. L. Speyers. It is found to be 0.0000120, or "about one-quarter of the compressibility of water at neighboring temperatures. It is found not to decrease remarkably as the pressure increases. This is probably the first direct determination of the compressibility of common ice which has ever been made."

Hydrogen Peroxide.—An elaborate study of the conditions under which 100 per cent. hydrogen peroxide may be obtained, with the aid of the silent electric discharge, from mixtures of hydrogen and oxygen gases has been made by P. M. Wolf (*A. Y. B.*, 1912, p. 626). A yield of 99.9 per cent. of the substance, calculated on the basis of the oxygen used, was obtained at —80° C. under the most favorable conditions. The photochemical decomposition of hydrogen peroxide has been studied by J. H. Mathews and H. A. Curtis. The reaction was found to be "a pure photolysis and not a secondary reaction." The influence of a number of inorganic and organic compounds on the rate of photolysis was measured quantitatively. Ordinary three per cent. hydrogen peroxide solution was found by Droste to attack aluminium, with formation of aluminium hydroxide. J. D'Ans and O. Wedig have found it possible, by bringing dry ammonia gas into contact with a solution of 98 per cent. hydrogen peroxide in absolute ether at —10° C., to effect the formation not only of the ammonium hydroperoxide, NH_4O_2H, first prepared by Melikoff and Pissarjewski, but also of ammonium peroxide, $(NH_4)_2O_2$. The stability of the various alkaline peroxides has been investigated by R. de Forcrand.

Ozone.—J. N. Pring has devised a method for the determination of ozone at very great dilutions and at temperatures as low as —60° C. The amount of ozone in the atmosphere up to an elevation of 20 kilometres was found to be 2.5×10^{-6} parts. In the Alps at 2,100 metres an average of 2.5×10^{-6} parts, and at 3,580 metres an average of 4.7×10^{-6} parts, were obtained. This last amount of ozone was found by colorimetric methods to give a distinct blue color, which indicates that ozone may be of influence as a factor in producing the blue color of the sky.

The Atmosphere.—The composition of the atmosphere with especial reference to its oxygen content has been made the subject of a careful research by F. G. Benedict. The average of 212 determinations of the percentage of carbon dioxide and of oxygen, respectively, in the outdoor air in the neighborhood of the laboratory (near Boston) is CO_2, 0.031; O_2, 20.952. The average of seven determinations made during a voyage between Montreal and Liverpool is CO_2, 0.031; O_2, 20.950. The average of 36 determinations made between Genoa and Boston is CO_2, 0.031; O_2, 20.946. The average of nine determinations made on Pike's Peak is CO_2, 0.031; O_2, 20.941.

Carbon Compounds. — Continuing his researches upon oxane (*A. Y. B.*, 1912, pp. 627, 630; 1913, p. 643), A. P. Lidoff has found that by heating such substances as nickel cyanide, nickel cyanamide, or urea, with phosphorus pentoxide, oxane is obtained

among the products. It is also obtained by the oxidation of cyanogen and of mercuric cyanide, and by the interaction of cyanogen chloride or cyanogen bromide and silver oxide. From his experiments Lidoff draws the very interesting conclusion that oxane probably accompanies carbon dioxide as a product of respiration and of combustion. H. Pauly and E. Waltzinger have investigated the new nitrogen carbide or "nitrocarbon" (*Stickkohlenstoff*), $(C_3N_2)_x$, which they obtained by heating tetra-iodo-imidazole until the iodine was completely expelled. The properties of this substance show that the nitrogen is chemically combined, and that the compound is to be distinguished from amorphous free carbon, although closely related to it in its physical properties. To the student of chemical analogy this work offers one further justification of the periodic arrangement of the elements in which, as is well known, nitrogen occupies a position in immediate proximity to carbon. F. G. Cottrell has found that at room temperature liquid acetylene does not react with metallic magnesium, but that in liquid ammonia solution it reacts fairly readily, forming the crystalline compound $MgC_2 . C_2H_2 . 5\ NH_3$, which is to be regarded as an ammonated primary magnesium carbide (or acetylide), together with ethylene mixed with smaller quantities of ethane. By the withdrawal of the ammonia from the original solid under high vacuum at low temperatures before heating, a nearly pure carbide may be obtained. T. W. Richards and A. H. Fiske have carefully determined with standard instruments the transition temperature between the dekahydrate and heptahydrate of sodium carbonate. This transition temperature, which was found to be 32.017° on the hydrogen scale, will serve as one more fixed point for use in the testing and standardizing of thermometers. O. Ruff and R. Wunsch have conducted an investigation of the system tungsten-carbon at high temperatures, devoting especial attention to the various carbides formed. Another notable investigation involving high temperatures is that undertaken by E. Tiede and E. Birnbräuer, who have studied the behavior of various metals, oxides and carbides in the cathode-ray vacuum furnace and in the high-vacuum furnace of Fischer and Tiede.

Flame Reactions.—W. D. Bancroft and H. B. Weiser have found that at the temperature of the Bunsen flame many metallic salts are dissociated, with the result that the metal is set free. It was found possible, for example, to prepare metallic mirrors of copper, cadmium, tin, silver, lead, bismuth, zinc, arsenic, and antimony by precipitation from the Bunsen flame, and to obtain mercury in the form of drops. From the oxyhydrogen flame metallic mirrors of molybdenum and of tungsten are said to have been obtained. F. Meyer and H. Kerstein, continuing the earlier work of Meyer on reduction in reversed flames, have investigated the reduction of the liquid anhydrous chlorides of groups three to five of the periodic system in the reversed chlorine-hydrogen flame. Carbon tetrachloride, for example, yielded a very finely divided, voluminous deposit of carbon containing some chlorine and hydrogen. Phosphorus pentachloride gave a dark red product containing 92-94 per cent. of phosphorus, while antimony pentachloride yielded a black powder composed of 93 per cent. of antimony and seven per cent. antimony trichloride.

Radiochemistry.—Among the numerous contributions made during the year in this field of work are the interesting articles entitled "Forces Between Atoms and Chemical Affinity," by J. J. Thomson, and "The Structure of the Atom," by E. Rutherford. O. Hönigschmid has carefully redetermined the atomic weight of uranium, using the ratios $UBr_4 : 4\ AgBr$, and $UBr_4 : 4\ Ag$. The difference between the value for uranium as thus determined, 238.17, and that for radium as previously ascertained (*A. Y. B.*, 1913, p. 644), 225.97, amounts to 12.2, while the theoretical difference, three times the atomic weight of helium, is 12.006. The noteworthy fact that the inactive end-products of the radioactive elements uranium, radium, thorium, and actinium are elements, which, although occupying the position of lead in the periodic sys-

tem, show differing atomic weights, has been established by Mme. Curie. By means of the method of Stas the atomic weights of the end-products from various sources were found to be as follows: monazite, 207.08; galena, 207.01; pitchblende, 206.64; yttrotantalite, 206.54; carnotite, 206.36. From his failure to note any difference in the rate of decay of radium emanation in air and in helium, W. Marckwald draws the conclusion that the decomposition of radium emanation is an irreversible process. E. Wourtzel has studied the decomposition of ammonia gas under the influence of radium emanation, and has found that the volume of gas decomposed per unit of radiation increases with rise of temperature, being nearly doubled at 108° and more than trebled at 220°. An investigation of the radioactivity of rubidium and potassium compounds has been made by E. H. Büchner. Rubidium salts were found to affect the photographic plate, but no action was obtained with salts of the other alkali metals. By passing *alpha* particles through hydrogen gas E. Marsden found that it was possible to obtain hydrogen molecules capable of producing scintillations and of traveling at least 3½ times as far as the *alpha* particles.

Neon and Helium.—It is not surprising that the startling announcement made last year by Collie and Patterson concerning the production of neon and helium (*A. Y. B.*, 1913, p. 644) has called other investigators into the field. R. J. Strutt has attempted to confirm the results of Collie and Patterson, but without success. No trace of either neon or helium could be identified spectroscopically. Nor were these gases obtained by bombardment of potassium salts with cathode rays. Using a method essentially different from that of Collie and Patterson or that of Strutt, T. R. Merton unsuccessfully attempted to produce the rare gases in vacuum tubes by means of the electric discharge. By modifying the apparatus used by Merton, however, and introducing uranium, which was then bombarded with cathode rays, Collie and Patterson succeeded in obtaining both neon and helium. Collie and Patterson have moreover performed a new series of experiments, in which the rare gases were obtained in a tube containing no electrodes. Independent evidence of the occurrence of neon in vacuum tubes containing hydrogen is furnished by the experiments of I. Masson. Final judgment in the controversy must be suspended, however, until further progress has been made.

Nitrogen.—The controversy regarding the alleged formation of active nitrogen by the electric discharge (*A. Y. B.*, 1911, p. 608; 1912, p. 629; 1913, p. 645) has finally reached a settlement. After repeatedly obtaining apparently contradictory results, the principal parties to the discussion at last adopted the admirable plan of working together on the problem. The results of the joint investigation have been published by H. B. Baker, E. Tiede, R. J. Strutt, and Emil Domcke, who now agree that a sample of nitrogen may indeed be made to give the glow more readily when containing a trace of oxygen, as maintained by Tiede and Domcke, but that the purest nitrogen, under the conditions prevailing in the experiments of Baker and Strutt, is also capable of giving a brilliant glow. The effect of the presence of infinitesimal traces of oxygen seems to be favorable to the production of active nitrogen.

Piezochemistry.—The action of carbon monoxide upon alcohols at pressures of from 150 to 300 atmospheres and at moderately elevated temperatures has been investigated by A. Stähler, who has also studied the action of compressed ammonia upon various substances. It has been found by V. Ipat'ev that carbon dioxide under a pressure of 50 atmospheres, either at ordinary temperatures or at 90°, readily displaces acetic acid from solutions of its calcium, barium, copper, and nickel salts. V. Ipat'ev and O. Rutala have investigated the polymerization of ethylene at high temperatures and pressures in the presence of catalyzers. P. Kohnstamm and his coworkers have designed an apparatus for the determination of gas isotherms at pressures up to 3,000 atmospheres, and have investigated the miscibility of certain pairs of liquids at these pressures. The elec-

trolytic reduction of carbon dioxide and carbon monoxide dissolved under pressure has been studied by F. Fischer and O. Prziza, who found that with high current density carbon dioxide was reduced quantitatively to formic acid, while with low current density carbon monoxide was partially reduced to methyl alcohol. The influence of pressure upon the e. m. f. of the lead accumulator has been investigated by E. Cohen and G. de Bruin. Using a specially constructed pressure cylinder, P. W. Bridgman has studied the phase diagrams of several substances under pressures up to 12,000 kg. Among the interesting results of this work may be mentioned the discovery of two new allotropic forms of carbon tetrachloride, one of benzene, and two of phosphorus. Bridgman has studied the new modifications of phosphorus in detail. (See also *Physics, infra.*)

Nonaqueous Solutions.—W. Herz and W. Rathmann have investigated the solubility of various substances in chlorinated aliphatic hydrocarbons. The potential of silver in various nonaqueous solutions of silver nitrate has been determined by V. L. Gibbons and F. H. Getman. C. A. Kraus has measured the e. m. f. of concentration cells of sodium in liquid ammonia. H. I. Schlesinger and A. W. Martin have studied the conductivity of some formates and of hydrogen chloride in anhydrous formic acid. Measurements of the conductivity of tetraalkylammonium salts in 26 different solvents were made by P. Walden. Continuing his earlier researches, A. Naumann (*A. Y. B.*, 1910, p. 590) has determined the solubility of 45 substances, chiefly inorganic salts, in acetonitrile, and has investigated various reactions that take place in this solvent.

Halogen Compounds.—The dissociation pressures of ammonium and tetramethylammonium halides, of phosphonium iodide, and of phosphorus pentachloride have been measured by A. Smith and R. P. Calvert with the aid of the static isoteniscope. In their study of the behavior of iodine in mercuric chloride and bromide, and of bromine in mercuric bromide solutions, W. Herz and W. Paul have obtained indications of the presence of polyhalides with the formula $HgBr_2I_2$, $HgBr_4$ and $HgCl_2I_2$. Perchlorates of aluminium, chromium, and magnesium have been prepared by R. F. Weinland and Fr. Ensgraber.

Selenium and Tellurium.—Carbon seleno-sulphide, CSSe, and carbon telluro-sulphide, CSTe, have been prepared by A. Stock and his coworkers. A mixture of the latter substance with C_2S_3 was found to be obtained by the action of the arc under CS_2 between graphite anode and tellurium cathode, instead of carbon bitelluride, as previously supposed (*A. Y. B.*, 1911, p. 609). L. M. Dennis and R. P. Anderson have investigated the properties of hydrogen telluride, prepared electrolytically in a new type of apparatus, and have determined the atomic weight of tellurium from the ratio $Te : TeO_2$, using the tellurium from various fractions obtained in the distillation of hydrogen telluride. No evidence of the complexity of tellurium was obtained. A. Gutbier, F. Flury, and V. Weinzierl have prepared and described a number of substituted ammonium hexahalogen tellurates of the type $(R.NH_3)_2TeX_6$.

Phosphorus.—A study of the precipitation of metallic copper from solutions of copper sulphate by yellow phosphorus has been made by R. M. Bird and S. H. Diggs, who have also described a phosphorus-copper cell and recorded its e. m. f. The transformation of phosphorus vapor in the glow discharge and the formation of red phosphorus by oxidation of phosphorus vapor have been investigated by V. Kohlschütter and A. Frumkin. Chromium arsenides and phosphides of the formulæ Cr_2As_3, CrAs, Cr_2P_3, CrP, have been prepared by Th. Dieckmann and O. Hanf. Attention has been called by R. Bossuet and L. Hackspill to a group of metallic phosphides derived from hydrogen phosphide, P_5H_2.

Silicon.—The spectrum of the purest obtainable (99.98 per cent.) elementary silicon has been measured by Wm. Crookes. G. W. Morey, using the "hydrothermal" method, has succeeded in preparing four new crystalline alkaline silicates, with the formulæ $K_2Si_2O_5$, $KHSi_2O_5$, $Na_2Si_2O_5$, and Na_2SiO_3. "In addition to the crystalline products, a series of hydrous

glasses was obtained. . . . They are perfectly hard, even though they contain up to 25 per cent. water."

Rare-Earth Metals.—C. Auer von Welsbach has determined the atomic weights of cassiopeum and aldebaranium, the elements obtained from ytterbium (*A. Y. B.*, 1910, p. 591), finding for Cp the mean value 175.00, and for Ad, 173.00. The action of bromine on the hydroxides of lanthanum and didymium has been studied by P. E. Browning, who believes that fractional solution with bromine affords a method for the separation of lanthanum and neodymium better than the Loelsbach method of fractional crystallization of the double nitrates. The preparation of metallic thorium, uranium, zirconium, and titanium in compact form has been investigated by D. Lely and L. Hamburger. The behavior of a large number of metallic oxides, including some rare earths, when heated in the electric vacuum furnace has been studied by O. Ruff with especial reference to their possible use as temperature standards.

Miscellaneous.—Articles on scandium and its compounds have been published by R. J. Meyer and his coworkers, by Fritz Wirth, and by J. Sterba-Böhm. Small quantities of germanium, amounting to about 0.00024 mg. of the oxide per liter, have been extracted from certain vichy waters by J. Bardet. By reducing a solution of potassium nickel cyanide with potassium amalgam in an atmosphere of hydrogen, I. Bellucci and R. Corelli have obtained a substance which seems to have the formula $K_2Ni(CN)_2$ and which is consequently considered to contain univalent nickel.

ORGANIC CHEMISTRY

RALPH H. MCKEE

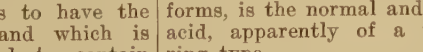
Natural Fats.—That mixed glycerides actually exist in natural fats has been shown by the extraction of palmityldistearin and stearyldipalmitin from lard and from butter fat (*Zeit. Nahr. Genussm.*, xxv, 321, 354; xxvi, 65).

Rubber.—Steimmig (*Ber. Deutsch. Chem. Gesell.*, xlvii, 350) has shown that natural Para rubber is not identical with that made by polymerization of isoprene by heat, as was formerly supposed. In this connection attention should be called to Pond's excellent historical review of the synthesis of rubber (*Jour. Am. Chem. Soc.*, 1914, xxxvi, 165).

Chlorophyll and Hæmin.—The wonderful work done by Willstätter and his assistants on chlorophyll has been followed by similar experiments (*Liebig's Annalen* for 1913 and 1914) on hæmin, the coloring matter of the blood, and the two have been shown to be closely related; that is, heating hæmin with alkalies gives ætioporphorin, $C_{31}H_{36}N_4$, which is identical with that obtained from chlorophyll. A provisional full constitutional formula for hæmin, which accords well with the facts so far known, has now been put forward by Willstätter and we may expect soon to have the complete proof for it and for the formula of chlorophyll. Hæmin consists of two complex groups joined by an iron atom, while the chlorophyll molecule is similar but contains a magnesium atom and no iron.

Cyanogen Chlorides.—The liquid isomer has been shown by Grignard and Bellet (*Comptes rendus*, 1914, clviii, 457) to possess the nitril formula, Cl.C:N, and the gaseous isomer to agree with that of an isonitril, Cl.N:C.

Glutaconic Acids.— Thorpe (*Jour. Chem. Soc.*, ciii, 1569) has shown the existence of three interconvertible isomers of phenyl-methyl-glutaconic acid and has shown that the third form, in addition to the expected *trans* and *cis* forms, is the normal and more stable acid, apparently of a trimethylene ring type,



Carbon Subnitride.—Heating tetraiodoglyoxaline gives carbon subnitride, (C_3N_2), a product resembling soot in appearance, or, if overheated, similar to graphite in appearance (Pauly und Waltzinger, *Ber. Deutsch. Chem. Gesell.*, xlvi, 3129). This substance should not be confused with the subnitride, C_4N_2, of very different properties, discovered in 1910 (*A. Y. B.*, 1910, p. 591). This new nitride is insoluble in organic solvents but

nitric acid oxidizes it to carbon dioxide. Heated with soda lime, ammonia is evolved; heated with nitrogen, cyanogen is quantitatively produced; while heated with carbon dioxide, it sets free carbon monoxide, cyanogen and nitrogen. Heated in air or oxygen, it burns in a manner similar to charcoal, and like that substance it absorbs gases and coloring matters from solutions. It seems to be closely allied to paracyanogen and to the absorbative forms of carbon, particularly animal charcoal, and a study of it promises to throw light on these peculiar substances.

Potassium Carbonyl. — On careful treatment of potassium carbonyl dissolved in liquid ammonia with water, glycollic acid is obtained. This, together with other evidence brought forward by Joannis (*Comptes rendus*, 1914, clviii, 874), shows the carbonyl to be K.CO.CO.K.

Cinnamic Acids. — It has been thought that the question of the isomerism of the cinnamic acids was settled by physical evidence and that, of the four forms, ordinary cinnamic acid was that having the *trans* configuration and that the three crystal forms, melting at 68°, 58°, and 42° respectively, were but three crystalline forms of the same substance, the cinnamic acid having the *cis* configuration (*A. Y. B.*, 1911, p. 610). Differences in the melted or dissolved state should not exist if this is true, but Stobbe and Schönburg (*Liebig's Annalen*, ccccii, 187) now show evidence of chemical isomerism of these three forms in water solution and in the fused state and have thus reopened the question. This proof that the 68°, 58° and 42° melting acids are chemical isomers is shown by the acids exhibiting differences in the dissolved state, the preparation of unlike mixtures of two in the dissolved state, and regularities obtained during the transformations of the acids.

Electronic Valence.—The electronic conception of valence and the possibility of electrical isomers ("electromers") has been given much attention of late and is proving of much theoretical interest to organic chemists. The earlier work of Falk and Nelson (*A. Y. B.*, 1911, p. 610) has been developed along somewhat different lines by Noyes, Jones and Fry (*Jour. Am. Chem. Soc.*, xxxv, 767; xxxvi, 248, 1035, 1268), the existence of electromers and the laws of substitution being given especial attention.

Bibliography.—Among the more important books on organic chemistry published during the year should be mentioned the following:

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GATTERMANN, L.—*Practical Methods of Organic Chemistry;* 3d. ed., from 11th German edition. (New York, Macmillan Co.)

HALE, A. J.—*The Synthetic Use of Metals in Organic Chemistry.* (London, J. and A. Churchill.)

HERZOG, R. O.—*Chemische Technologie der Organischen Verbindungen.* (Heidelberg, Carl Winter.)

HOLDE, D.—*Untersuchung der Kohlenwasserstofföle und Fette.* (Berlin, Julius Springer.)

POPE, F. G.—*Modern Research in Organic Chemistry.* (New York, D. Van Nostrand Co.)

SCHMIDLIN, J.—*Das Triphenylmethyl.* (Stuttgart, F. Enke.)

TOLLENS, B.—*Kurzes Handbuch der Kohlenhydrate;* 3d ed. (Leipzig, J. A. Barth.)

BIOLOGICAL AND FOOD CHEMISTRY

CARL L. ALSBERG

Metabolism. — Chittenden's views that diets containing very small amounts of protein are sufficient have been defended by Hindhede from attacks by Rubner. The specific dynamic action of proteins (*A. Y. B.*, 1913, p. 649) depends upon certain of the amino-acids formed from them during assimilation (Lusk) and is not mere acid action (Benedict). That cereal proteins will not alone support life because they lack certain amino-acids (lysin, tryptophan) is proved by the fact that they will do so when fed together with these acids (Osborne and Mendel) and that milk proteins which contain these acids will support life and growth (Wheeler). Creatin and creatinin seem to be end-products of metabolic processes distinct from those that lead to urea and ammonia

(McCollum and Hoagland, Graham and Poulton). The utilization of ammonia from the diet is still debated (Grafe). In the skin disease, psoriasis, there is considerable retention of nitrogen (Schamberg, Ringer, Raizies and Kohner). A series of substances, some perhaps pyramidines, seem to have vitamine action (*A. Y. B.*, 1912, p. 631; 1913, p. 649) (Vedder and Williams, Funk). Indeed rice may contain at least two vitamines, one of which has greater curative effect on "dry" beri-beri (*A. Y. B.*, 1911, p. 633), the other on the wet form of this disease (Vedder and Williams). However, Röhmann maintains that neither specific growth-promoting substances nor lipoids (Stepp, Dezan, Contieri) are essential to life (*A. Y. B.*, 1912, p. 634). Nevertheless lipoids fed may be deposited as such in the tissues (Salkowski, Anitschkow). Moreover, disturbance of the metabolism of cholestearin may be causally related to definite tissue lesions such as those of atheroma (Contieri, Rosenbloom, Weston, *et al.*, Wacker and Hueck, Adler). Abel, Rowntree and Turner have interpolated an "artificial kidney" consisting of collodium tubes into the circulation of a living animal; the crystalloid components of the blood, many of which are intermediary products, diffuse through the collodium membrane from the blood, and may thus be collected and studied (see also XXVIII, *Physiology and Pharmacology*).

Enzymes.—The injection of a foreign protein into an animal causes enzymes decomposing protein to appear in the blood. These have been called protective enzymes and they act upon any protein. In pregnancy, however, the serum contains specific enzymes acting only upon the proteins of the placenta (Abderhalden, Freund and Pincussohn). Apparently the proteins of the placenta behave like foreign proteins in causing the formation of protective enzymes in the blood of the mother. It was therefore proposed to diagnose pregnancy by taking some of the mother's serum and seeing if it would digest a piece of placenta. To facilitate the detection of the protein decomposition products thus formed a new reagent, ninhydrin, or triketohydrindenhydrate, was used (Aberhalden) so that the test is usually called the ninhydrin reaction. It was thought that in the same way it would be possible to diagnose diseases that are accompanied by the breaking down of tissues, as for example general paresis or cancer. However, the results have been of doubtful practical clinical value, even in pregnancy (Pincussohn). As after the injection of protein, so after the injection of complex sugars, such as cane sugar, enzymes decomposing the sugar appear in the serum. With such a serum levulose or fruit sugar, a simple sugar, was transformed into the complex sugar, lactose or milk sugar (Röhmann and Kamagai). Other remarkable new enzyme syntheses (*A. Y. B.*, 1911, p. 615) have been found for glucosides (Bourquelot and Bridel) and by means of yeast enzymes for galactosides (Herissey and Aubry) and dextrorotatory polysaccharides (Harden and Young).

Plant Chemistry. — The chemical constitution of the lichen acids, of gallic acids, and of tannins has very largely been cleared up (E. Fischer). Tannins seem to be esters of sugars with such phenolic acids as gallic acid. Some of the sugars seem to be new. The employment of sugars to esterify acids is a phenomenon of wide biological significance. Though no tannin has as yet been made synthetically, closely related substances of very high molecular weight have been obtained. Progress has been made in the study of plant pigments, especially chlorophyll, anthocyanin and the pigment of brown algæ. The anthocyanin of the corn-flower is a glucoside of which the chromogen has been crystallized (Willstätter). In the bean, *Vicia faba*, the new amino acid, dioxyphenylalanin has been found (Guggenheim). Amino nitrogen has been shown to be readily utilized by green plants (Schreiner, Shorey, Lathrop, Sullivan), which explains the value of processed fertilizers. These are made by converting such protein waste material as hair, leather, horn and hoof into amino acids by means of strong mineral acid (Skinner). The discovery that fermenting yeast reduces nitro-benzol to anilin (Neuberg and Welde) has most important bearings upon the study of

the mechanism of the formation of amino nitrogen from nitrates by plants. It is the only biological reduction of this type hitherto discovered. (See also *Agricultural Chemistry, infra.*)

Pharmacology, Chemotherapy.—The therapeutic value of radium, thorium and mesothorium has been much discussed and a special journal (*Radium in Biologie und Heilkunde. Monatschrift für biologisch-therapeutische Forschung*, Leipzig, J. B. Barth) devoted to these researches established. In chemotherapy organic compounds of copper, selenium, boron, arsenic, antimony and mercury have been studied. Some of these metals have been used in combination with dyes or lipoids. Valuable derivatives of quinine such as ethylhydrocuprein have been obtained. Ford and Clark have added much to our knowledge of poisonous American mushrooms. Tartaric acid injected into the blood has been found to produce nephritis and other toxic effects (Underhill, Salant, Pearce and Ringer).

Food and Drug Control.—A joint standards committee representing the National Association of Food, Drug, and Dairy Officials, the Association of Official Agricultural Chemists and the Department of Agriculture has been formed to establish uniform food and drug standards. These standards will be used by officials generally and should vastly promote efficiency and uniformity in food and drug control. In December Congress enacted a law for the control through the Bureau of Internal Revenue of the traffic in habit-forming narcotic drugs.

In United States *v.* Lexington Mill and Elevator Company (232 U. S. 399; Circular No. 79, Office of the Solicitor), the Supreme Court interpreted the provision of the Food and Drugs Act by which an article of food is declared adulterated "if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health." It was held that an article of food is adulterated if, because of any added poisonous or deleterious ingredient, it may, by any possibility, injure the health of the strong or the weak, the old or the young, the well or the sick, or any of these; or, conversely, that an article of food is not adulterated, within the meaning of this provision, "if it can not by any possibility, when the facts are reasonably considered, injure the health of any consumer," even though it contain "a small addition of poisonous or deleterious ingredients."

In United States *v.* Antikamnia Chemical Company (231 U. S. 654; Circular No. 76, Office of the Solicitor), the Supreme Court sustained the validity of a regulation which requires that, in declaring the quantity or proportion of derivatives of any of the substances specified in Section 8 of the Food and Drugs Act, the name of the specified substance, in addition to the trade name of the derivative, shall be stated. It was held, further, that the Act itself requires that the name of the specified substance be stated if the article contain a derivative of it.

In United States *v.* 40 Barrels and 20 Kegs of Coca-Cola (Circular No. 80, Office of the Solicitor), the Circuit Court of Appeals for the Sixth Circuit construed the provision of the Food and Drugs Act by which an article of food is declared adulterated "if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health," and held that a mixture or compound sold under its own distinctive name is not adulterated because it contains, as one of its normal ingredients, a poisonous or deleterious substance, since such poisonous or deleterious substance is not added to the article within the meaning of the provision, but is a part of it.

In United States *v.* 13 Crates Frozen Eggs (208 Fed. 950; N. J. No. 2859), affirmed by the Circuit Court of Appeals for the Second Circuit on June 3, 1914 (N. J., No. 3411), it was held that the Act prohibits the transportation in interstate commerce of frozen eggs, or eggs not frozen, so far decayed or decomposed that it may be said they consist "in whole or in part of filthy, decomposed, or putrid animal or vegetable substance," and that such eggs, which have not been denatured, may be seized and condemned, even if the shipper intended them to be used for tanning, not for food, purposes.

Regulations 9 and 29 for the enforcement of the Food and Drugs Act have been amended. Regulation 9, in effect, prohibits the use upon labels, on and after Nov. 1, 1916, of the legend, "Guaranteed by ——— under the Food and Drugs Act, June 30, 1906," and similar legends, heretofore authorized, and requires the cancellation of general guaranties filed with, and serial numbers assigned by, the Department of Agriculture, on the ground that the use of the legends and numbers upon packages of food and drugs conveys the false and misleading impression to the public that the articles have been examined and approved by the Government and that the Government guarantees that they comply with the law. Regulation 29, as amended, prescribes the manner and method of stating the quantity of the contents of foods in package form, required by the act of March 3, 1913 (37 Stat., 732). Regulations governing the importation of meat products were promulgated and all the regulations governing the meat inspection of the Department of Agriculture revised (see also XVII, *Live Stock*).

An abstract of the Referee Board's report on alum was published by the Department of Agriculture. No objection is raised to baking powders solely on the ground that they contain alum. A food inspection decision defining wine has also been issued. In January the Bureau of Chemistry began the monthly issuance of decisions, rulings, and notices of judgment under the caption "Service and Regulatory Announcements." This publication will give a complete record of the regulatory activities of the Bureau of Chemistry in administering the Food and Drugs Act.

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SANITARY CHEMISTRY

E. M. Chamot

Tendencies in Sanitation.—The year 1914 has been characterized by remarkable progress in general sanitary measures, in all of which sanitary chemistry has played a leading rôle but as an accessory rather than a principal. The chemist has himself become a sanitarian or has coöperated with sanitary experts. The chief lines of advance have been directed toward more sanitary conditions of food production and manufacture, toward cleaner industrial surroundings and cleaner employees. To offset this increased cost of production every possible effort has been made to improve the methods of manufacture, utilize waste or prevent waste. There is a growing tendency in many quarters to recognize more than one grade of food material and to urge the industries to meet the increased cost of living through the sale of second- or even third-grade products, *provided these products are so labeled.* To encourage these plans further, exceptional efforts have been made by chemists interested in the enforcement of pure-food laws to secure the adoption by state and nation of uniform food standards. Most of the research work in sanitary chemistry has therefore been confined to the analysis of samples of foods of known origin and purity to establish their composition and the probable limits of variation in unadulterated products.

Foods.—There appears to be a decided increase in the study of processes for the manufacture of evaporated, dried or desiccated foods of all classes, resulting in the production of foods both nutritious and palatable. Preserved or so-called "canned" goods have also received more than usual attention, not only with a view to lowering the cost of production by improved processes and reduction of losses, but also to the placing upon the market of material of higher grade and increased food value. In this connection extensive work upon the nature and food value of "hydrogenized" fats (such as "Crisco") is under way.

Water.—The unsatisfactory character of a number of commonly employed methods in water analysis has been emphasized and steps taken through coöperative investigation to devise means for improving them and rendering the interpretation of results easier and more reliable; reports of this research should be available within a year.

The application on a large scale of aeration as a means of improving water supplies through the removal of odors, tastes, iron, carbon dioxide, etc., has led to a more careful study of the dissolved gases in water and of the dissolved oxygen in particular. The results obtained indicate that there is no reason to change the generally accepted low minimum of 40 to 50 per cent. of the normal saturation as the point below which it is not safe to go to avoid a nuisance in sewage-polluted waters.

Water softening by "zeolite" processes is on the increase on a large scale. The general consensus of opinion is favorable both as to results and cost.

Disinfection by means of liquid chlorine has increased in greater proportion than by hypochlorite. Both these methods of water purification have been introduced in many municipalities with uniformly satisfactory results. So too the number of municipalities improving their water supplies through filtration has greatly increased with a very gratifying decrease in the death rate due to waterborne diseases. No other chemical processes have been given more than a superficial trial, although a new manganese process, claimed to be a continuous one, has been proposed in which potassium permanganate is the effective agent, the claim being that the reduced permanganate may be easily and economically regenerated. Disinfection through ozone and ultraviolet rays has not materially increased. The latter process is extending somewhat. Its proposed installation at Niagara Falls will be watched with much interest, since it is claimed that the cost of treatment will fall below 70 cents per million gallons. (See also XXI, *Civil Engineering.*)

An interesting method has been proposed which it is claimed will successfully treat dairy wastes in water,

a form of pollution the most difficult to deal with that is met with in sanitary practice. In this process the polluted water is treated with a solution of soluble calcium phosphate, then with milk of lime; the insoluble phosphate of lime thus resulting carries down with it the fat and almost all the casein. After a period of sedimentation the water is allowed to flow over a small irrigation field and the sludge caused to flow upon a turf covered filter. The turf must frequently be renewed and that removed is, it is claimed, an excellent fertilizer.

Ventilation.—Studies upon ozonized air have given results in corroboration of those obtained in the past, namely, that while ozone will destroy most odors its germicidal power is too low to warrant its application to the ordinary problems of ventilation.

AGRICULTURAL CHEMISTRY

WILLIAM H. ROSS

Soils.—As a part of the investigational work inspired by the high cost and increasing demand for nitrogenous fertilizers in this country, considerable attention has been given recently to a study of the form, availability and conservation of the nitrogen in the soil. The number of organic compounds which have been isolated from the soil and identified is now about 40. Eleven of these are nitrogenous compounds. Some of the latter, as picoline carboxylic acid, exercise a harmful effect on plant growth, while others, as nucleic acid, xanthine, creatinine and histidine, are beneficial (Schreiner and Skinner, Bureau of Soils, Bull. 87). Plants grown in solution cultures containing only potash and phosphate show greatly increased growth when one of these compounds is added. The effect of the compounds is less marked when nitrate is also present, but under these conditions less nitrate is used by the plant. It is considered, therefore, that these compounds are able to replace nitrate in its effect on plant growth.

It has been observed by Lyon and Bizzell (Cornell Univ. Agri. Expt. Station, Mem. No. 1) that the nitrate content of soil under timothy, maize, potatoes, oats, millet and soy beans was different for each crop when in the same soil, and that a characteristic relationship exists between the crop and the nitrate content of the soil at different stages of growth. Under both maize and oats the nitrate content was higher during the period when the crop was making its greatest draft on the soil nitrogen than in the later stages of growth, and, in the case of soil growing maize, the nitrates were frequently higher during the most active growing period than in cultivated soil bearing no crop. Late in the season, however, the conditions were reversed, for the nitrates under these crops then failed to increase even when nitrogen absorption had practically ceased, although uncropped soil showed a very large increase in nitrates at the time. It is suggested that these results may be accounted for on the assumption that nitrate formation is stimulated by some processes connected with the active growth and absorbing functions of some higher plants, and that during their later period of growth the plants exert a depressive influence on nitrate formation.

Further investigations by Headden (*Jour. Ind. Eng. Chem.*, vii, 586) and by Sackett (Colorado Agri. Expt. Station, Bull. 193) on the occurrence of excessive quantities of nitrates in certain Colorado soils give support to the views previously advanced (*A. Y. B.*, 1912, p. 641) that the nitrates are not due to the concentration of previously existing nitrates, as some have suggested, but are formed *in situ* through the combined action of nitrogen-fixing, ammonifying and nitrifying organisms. The concentration theory is held to be inadequate by the fact that nitrates do not exist in appreciable quantity in the alkalies, soils and waters of these sections; but that they contain a vigorous nitrifying flora is confirmed by experiments which show that the soils examined are very superior in nitrifying efficiency to 22 other soils collected in various other places outside the state. In defense of the theory that the deposits are due to the concentration of preëxisting nitrates, Stewart and Peterson (Utah Agri. Expt. Station, Bull. 134) give results of a large number of analy-

ses which show that the country rock contributing to the formation of the soil in Colorado and Utah is heavily impregnated with nitrates, and that many samples of shale and sandstone contain as high a percentage of nitrates as occurs in the "nitre spots" in the cultivated soil. In the country rock, and in the cultivated soil as well, a close relation exists between the nitrates and chlorides such that those samples which contain most of the former also contain largest quantities of the latter, indicating a common origin for both. It is considered, therefore, that the nitrates were not recently formed through nitrogen fixation, but that all the salts have had their origin in the brackish waters of the old Cretaceous and Tertiary inland seas.

The effect of manganese salts on poor and good soils has been studied by Skinner and Sullivan (U. S. Department of Agriculture, Bull. 42) by growing wheat in pots and in treated aqueous extracts of soils. In the case of poor, unproductive soils manganese salts were found to increase oxidation and growth, but in productive soils, although oxidation was increased as before, growth was decreased. It is considered that the beneficial action of manganese may be due to its function of aiding and increasing the oxidation processes and other vital processes in the plant as well as in the soil whereby noxious products detrimental to plant growth are changed or destroyed; but in the case of productive soils the oxidation processes are already good and the effect of adding manganese is to bring about excessive oxidation with harmful effects. It was further concluded from field tests in a soil inclined to be acid that manganese is not profitable as a soil treatment on soil in need of liming.

From the study made by Parker on adsorption by soils (*Jour. Agri. Research*, i, 179) it is seen that soils not only have the power of adsorbing salts from solutions but also of adsorbing one ion at a greater rate than the other. Thus, the rate of adsorption of chlorine ions from a solution of potassium chloride by soils is much less than of potassium ions, and in general the smaller the soil particles the greater the selective adsorption of potassium by the soil. It is considered that the presence of bases of the soil (calcium, magnesium, etc.) in solution after shaking certain salt solutions with a soil is not due to a direct chemical reaction of the salt in solution with the silicates of the soil but to a reaction of free acid, resulting from a selective adsorption of the cations, with the mineral compounds of the soil.

Fertilizers.—Considerable activity is still being maintained in the efforts which are being made to find some improved method over that now in use (*A. Y. B.*, 1913, p. 655) for extracting or rendering soluble the phosphoric acid in phosphate rock. The processes of this kind which have been patented during the year are 12 in number. Most of these may be divided into three classes: (1) processes which involve treatment with an acid; (2) processes in which the phosphate rock is ignited with silica and coke to a high temperature in an electric furnace whereby the phosphoric acid in the rock is replaced by silica and is recovered by volatilization; and (3) processes in which two or more operations are combined in one, yielding a fertilizer containing phosphoric acid and one or both of the plant foods, potash and nitrogen. To the first class belongs the present commercial method of treating phosphate rock with sulphuric acid, which is the only one now in use in the manufacture of phosphate fertilizers. The first patent on the method of treatment described in the second class has been issued to Willson and Haff (U. S. patent No. 1,084,856; see also Washburn, U. S. patent No. 1,100,639). From the results obtained in tests made with this method on an industrial scale it is thought possible that it may ultimately provide a means of preparing phosphoric acid at a lower price per unit than the sulphuric acid method now in use, or of any of the numerous other processes which have been proposed. It is suggested that the phosphorus, which is volatilized either as the element or as the oxide, and which is subsequently oxidized to phosphoric acid, may be collected as such, converted into phosphates or

used in treating fresh phosphate rock with a view to preparing mono-calcium phosphate for use as a fertilizer. Various processes belonging to the third class have been proposed during the year, but it has not yet been clearly demonstrated that any of them are of commercial application. The status of the potassium and nitrogen industries, in so far as relates to their production in this country for use in fertilizers, has changed but little during the year (see also *Industrial Chemistry, infra;* and XVII, *Agriculture*).

It has been observed by Plummer (North Carolina Agri. Expt. Station, Tech. Bull. 9) that soils which contain their potash principally in the form of feldspar give greater response to potash fertilization than those in which mica is the principal potash-bearing mineral present; and similarly for the application of phosphoric acid and lime fertilizers, the greatest response being obtained when they are applied to soils in which these constituents are present in the most insoluble form. It is concluded from these results that there is a close relationship between the chemical and mineralogical composition and the fertilizer requirements of the soil.

Plant Chemistry.—With a view to throwing more light on certain plant diseases which are supposed to be disturbances of a purely physiological nature, a study was made by Bunzel (*Jour. Agri. Research*, ii, 373) of the oxidase activity of healthy sugar-beets and potato plants, and of these plants when affected by the curly-top and curly-dwarf diseases respectively. It was found in each case that the foliage of the diseased plants shows a greater oxidase activity than the healthy ones, and that the same holds true with regard to the tubers of the potato, but no marked difference was noted in the roots of healthy and diseased sugar-beets. In the case of the foliage of normally developed potato plants the oxidase activity is greatest in the early stages of development; it falls off with growth of the plant, and rises again when the plant's growth has about reached a standstill. All parts of the beet contain oxidase. The juice of the seeds is the most active, that of the leaves and roots next, while the stem is the least active part.

The investigations of Besley and Baston (U. S. Dept. Agri., Bull. 102) have shown that the degree of acidity of corn varies inversely with its germinating power, and increases directly with the percentage of damaged kernels as determined by mechanical analysis. The acidity is likewise greatly increased by the action of fermentation and high temperature. It thus happens that a determination of the degree of acidity may be used as a reliable method of testing the quality and soundness of corn. It is pointed out that, from the standpoint of commercial grading, corn with a degree of acidity less than that equivalent to 22 c.c. of normal alkali per 1,000 grams is normally sound and of good commercial quality; between 22 and 26 c.c., is somewhat inferior in quality and soundness due to deterioration of the germ; between 26 and 30 c.c., evidences marked deterioration and is unsound; and greater than 30 c.c., is badly damaged and of very low quality.

According to the experiments of Safro (Oregon Agri. Expt. Station, Research Bull. 2), the density of a lime-sulphur spray does not indicate its power of causing injury to leaves and fruits, as many have supposed, but rather the injury when it occurs is due to calcium polysulphides in the spray, and to a less extent to calcium thiosulphate. All other normal ingredients occurring in the lime-sulphur spray, either before or after its application, are harmless to fruit or foliage. Rain following an application of lime-sulphur tends to decrease or prevent injury.

Dairying.—The work of Bosworth and Van Slyke (N. Y. Agri. Expt. Station, Tech. Bull. 34) has shown that when a salt of ammonium, sodium or potassium is added to milk, or a casein solution, a double decomposition takes place whereby the calcium caseinate is changed to a caseinate of the base added. These are converted to paracaseinates by rennin, but owing to the fact that all the paracaseinates of these bases are soluble, no curdling takes place. This fact explains the favorable results obtained by the addition of sodium ci-

trate to milk in preventing the abnormal curdling of the milk in infant feeding. The addition of an amount of citrate below that necessary to prevent curdling has the effect of modifying the curd with respect to softness, and this increases as the amount of citrate in the milk is increased.

ELECTROCHEMISTRY

G. A. Roush

Electrolytic Production of Light.—One of the most interesting developments of the year in the field of electrochemistry is the success of the experiments of Bancroft and Weiser on the electrolytic production of light (*Trans. Am. Electrochem. Soc.*, xxv, 121). When mercury is burned in bromine, an orange light is emitted. When mercurous or mercuric bromide is exposed to the cathode rays, a similar orange light is obtained. If a cold, fairly concentrated solution of potassium bromide (25 per cent.) is electrolyzed with a mercury anode at a current density of about two amperes per sq. dm., the mercury first becomes coated with a film of bromide and then begins to glow with this same brilliant orange light. This lasts for several minutes until the film of bromide has become so thick as to prevent the light being seen. The light can be detected with a voltage as low as three volts, and increases in intensity with increasing voltage, the upper limit being that where visible sparking takes place. The phenomenon is shown very well at a voltage of 24—28 volts.

Electrical Collection of Cement Dust.—Cottrell describes the application of his system of electrical deposition of smoke to the collection of cement dust at Riverside, Cal. (*Elec. Rev.*, lxiv, 1253). Ninety tons of cement dust are collected per day with a power expenditure of 35 kw.

Electrometric Titration Methods.—Ziegel (*Trans. Am. Electrochem. Soc.*, xxvi) and van Suchtellen and Itano (*Jour. Am. Chem. Soc.*, xxxvi, 1793) describe electrometric methods for making titrations that promise to be of considerable value in routine analytical work. The change in potential at the end point of a titration is used to show the end point instead of ordinary indicators, and Ziegel has devised an apparatus which automatically turns off the stopcock of the burette and stops the titration when this change of potential takes place.

Electrical Conductivity of Metals.—Northrup describes a new electric furnace for the production of exceedingly high temperatures and gives results of a number of measurements of electrical conductivity of various metals at high temperatures, using this furnace (*Trans. Am. Electrochem. Soc.*, xxv, 373; *Met. Chem. Eng.*, xii, 305, 340). Results are given on the electrical conductivity of sodium, potassium, mercury, cadmium, lead, zinc, tin, bismuth, antimony, copper, aluminium, gold and several alloys. With the exception of antimony and bismuth, all show a sudden increase in resistance on passing from the solid to the liquid state, with a general ratio of increase of two to one. The increase of resistance with temperature in the molten condition is nearly linear for most metals. The type of furnace used in these experiments is capable of giving temperatures sufficient to melt tungsten.

Electric Furnaces.—At the spring meeting of the American Electrochemical Society, held in New York in April, there was an interesting symposium on power problems in electrochemistry, followed by an extensive discussion of the various papers. The symposium and discussion in full are given in the *Transactions* of the Society (xxv, 29-120). At the same meeting there was also an extended discussion on the use of the electric furnace in steel making, following papers on this subject by C. A. Hansen and E. B. Clark (*Trans. Am. Electrochem. Soc.*, xxv, 133-160).

Electric furnaces of various types have recently found a new field of application in the steel plant. They are being widely used in Europe and are being introduced in this country to keep molten the ferro-manganese for the deoxidation of steel. The use of molten ferro-manganese instead of solid alloy results not only in a saving of alloy, but gives a better deoxidation and a better steel. Various types of electric furnace have been used for this purpose, several using induction furnaces and others Héroult

furnaces. The furnaces are usually from three to four tons in capacity. At one plant using a three-ton induction furnace, the average energy consumption was 721 kw.-hours per ton of ferro-manganese. To maintain the furnace hot during long intermissions, 200-250 kw. were required. In another plant with a four-ton, 500-kw. furnace, the ferro-manganese was melted at the rate of 10 tons per 24 hours, with an energy consumption of 750 kw.-hours per ton. The use of the molten alloy made possible a saving of 40-50 per cent. in the ferro-manganese required for deoxidation. (See also XVIII, *Iron and Steel.*)

Electrometallurgy of Iron.—Humbert and Hethey (*Electrician*, lxxiii, 259) have described experiments in the electrical production of steel directly from the ore. A Héroult arc furnace of six tons capacity was used, working on a single-phase current. Three series of tests were made: (1) direct reduction of siliceous Swedish ore; (2) direct reduction of common Swedish ore and the siliceous Swedish ore with 30 per cent. of scrap mixed with the charge; (3) direct reduction of Brazilian ore. Some very good results seem to have been obtained and the possibilities of the process are promising.

Keeney (*Bull. Am. Inst. Min. Eng.*, 1914, p. 349) discusses the production of pig steel from ore in the electric furnace. If very low carbon is required the loss of iron in the slag becomes excessive. The greater part of the silicon, sulphur and phosphorus of the charge can be readily slagged if the slag is sufficiently fluid. Experience at Domnarfvet, at Tröllhätten and at Héroult shows that there is less difficulty in producing pig steel in the electric furnace than pig iron.

Tungsten Recovery.—Wysor reports a successful experiment on the recovery of tungsten from tool steel scale (*Iron Age*, xciii, 910), using a Héroult three-phase furnace. With a low phosphorus pig iron to start the bath, all the tungsten and about 80 per cent. of the chromium and vanadium were reduced from a hammer scale, giving a satisfactory recovery with a very moderate use of current.

Insulation of Aluminium Wire.—An interesting and valuable application of electrolysis is described by Skinner and Chubb (*Trans. Am. Electrochem. Soc.*, xxvi). Aluminium wire is coated with an insulating film of alumina by drawing the wire as cathode through a solution of borax, ammonium borate or sodium silicate. The thin film of alumina formed in this way on the wire is of such high dielectric strength that no further insulation of the wire is needed. Two such wires twisted together will stand a pressure of from 200 to 500 volts. Coils can be wound from this wire, which, on account of the thinness of the insulating film, will occupy no more space than a copper coil of the same conductivity, in spite of the lower conductivity of the aluminium, because the copper must be provided with a fibrous insulation that makes a very large proportionate increase in its diameter, particularly with the smaller sizes. Various methods of measurement show that the thickness of this film is only 0.0001—0.0004 in. (0.00025—0.001 cm.). On account of this exceeding thinness, the film is quite flexible and does not open or appreciably weaken by sharp bends and kinks in the wire. The coating is fireproof and has a sufficient mechanical strength to support the wire in small coils when the metal is above the melting point.

Hydrometallurgy of Copper.—Another of the important developments in the field of electrochemistry during the year is the work on the hydrometallurgy of copper, with electrodeposition of the leached metal. The work of the Chile Exploration Company is described by E. A. C. Smith (*Trans. Am. Electrochem. Soc.*, xxv, 193; *Met. Chem. Eng.*, xii, 291; *Eng. Min. Jour.*, xcvii, 865). Ore with an average copper content of two per cent. is dissolved in dilute sulphuric acid after crushing to ¼-in. mesh. The leaching requires six days and is followed by electrodeposition of the dissolved copper, the spent electrolyte being used for the leaching of fresh ore. As the ore is a basic sulphate mixed with chlorides, sulphuric acid and chlorine accumulate in the electrolyte and must be removed. Gahl describes experiments on the leaching of copper tailings made at the plant of the Detroit Copper Co., Morenci,

Ariz. (*Trans. Am. Electrochem. Soc.*, xxv, 243). An important contribution to the literature on the hydroelectrometallurgy of copper will be found in a paper by Goodrich (*Trans. Am. Electrochem. Soc.*, xxv, 207) in which he collects data and general information in regard to all of the processes for the hydroelectric treatment of copper ores.

Gold Refining.—LaCroix describes the electrolytic apparatus used by the Geneva Gold Refinery for refining precious metals (*Met. Chem. Eng.*, xii, 441). At this refinery the processes of Dietzel, Moebius or Wohlwill are used, depending on the composition of the alloy to be refined.

Electrometallurgy of Lead.—Electrometallurgy of lead is gaining headway and recent experiments by Mathers and his assistants show satisfactory deposition from many salts previously considered unsuitable, such as lactates, acetates, etc. (*Trans. Am. Electrochem. Soc.*, xxvi).

Electrometallurgy of Zinc.—Electrometallurgy of zinc still continues to hold its own, and should now receive considerable impetus in view of the fact that all of the important zinc-gathering centers of Europe are involved in the European War. Johnson has closed down his experimental plant at Hartford, Conn., and is at present engaged in installing the first 10-ton unit of a 100-ton plant at Keokuk, Iowa.

Silfrax.—Tone describes the formation of silfrax, silicidized carbon, a new product of the electric furnace (*Trans. Am. Electrochem. Soc.*, xxvi). When solid carbon is acted on by vapors of silica or silicon, there is formed a silicon-carbide product of the same shape as the original carbon, but differing from ordinary carborundum in certain essential characteristics. The properties and characteristics of the product vary with the temperature formation. If the carbon article is heated to a temperature of 1550-1820°, the product is amorphous in appearance, showing no crystals except under high magnification. If the carbon is heated to a temperature of 1820-2220°, the product is of high density and plainly crystalline. Upon fracture it shows a steel-black color and a metallic luster. The depth of the silicidizing action is mainly a function of the heat and the concentration of silicon vapor present. Under ordinary conditions the maximum penetration is about one half inch. Silfrax is used in electrical-heating elements, in chemical ware and as a refractory material. It has all the chemical and heat-resisting properties of carborundum and in addition has high density and toughness.

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

James R. Withrow

The Chemical Industry.—The general business depression throughout the world extending into the first half of the year 1914 was emphasized at least in the United States by great cessation of expansion and development along manufacturing chemical lines. By midsummer, when many signs were indicating an improvement, the sudden projection of the European War into the situation again produced stagnation and even threatened disaster in some directions, though some industries were benefited. The petroleum industry was very hard hit and the same was true of turpentine, rosin, wood-alcohol, acetate of lime, dry-cleaning soaps, and mixed fertilizers. The last two depend upon Germany for potash and the others export heavily to that country. The complete cessation of potash exportation from Germany interferes to a varying extent with the production of photographic materials, dye stuffs, explosives, and many chemicals.

Some careful speculation as to the permanent effect of the European War on American industrial chemical development has been published (*Met. Chem. Eng.*, 1914, p. 551, compared with p. 584, 663). Many chemical manufactures are already entering upon the production of substances hitherto imported but which are closely related to their own well developed products. It will be hazardous to undertake for a little while any extensive effort to jump into lines of manufacture not already well established, such as most of the refined coal-tar industry, in view of our ex-

perience with the grueling persecution of past American efforts in this direction by European producers. From all appearances the glucose industry may have the opportunity of rendering much assistance if we should have a failure of beet-sugar production a year hence. It appears that nearly all our beet seed and over 50 per cent. of our garden vegetable seed come from that part of France which is now the theater of war. This may result in several years setback to the beet-sugar industry in this country, as beet-sugar seed production and selection is a slow and expensive operation (see also XVII, *Agriculture*). Notwithstanding all this the double field of industrial chemistry and chemical engineering which underlies almost the whole of the foundations of our modern industrial development and civilization has not been without the usual forward strides. The few points here selected will indicate the general directions of progress.

Potash Salts.—As a result of various factors it has become apparent to other countries than our own that potash independence is desirable and the hunt for potash sources has become well nigh world-wide. An indication of our dependence on the great deposits near Stassfurt, Germany, is the fact that we imported so-called "potash salts" during 1913 to the extent of 600,000,000 lb., valued at $10,800,000. This is only a part of the importation, for there should be added the products classed as "kainite," "manure salts," and "double manure salts," imported to the extent of 14,000,000 lb., valued at $4,500,000, or a total of over $15,000,000. The exploration activity in the United States during the year has not been productive of important results as yet. There is announced by Secretary Lane of the Interior Department as under construction at Searles Lake, Cal., a plant for potash production from the mixed salt deposits there which will have an initial output of five tons per day, to be rapidly increased to 120 tons (see also XVII, *Agriculture*). While this is a slim production in view of the demands, yet it is a distinct step forward. In this country two general sources of potash salts are in the development stage as commercial enterprises. One is the utilization of alunite, "alum stone," "alum rock," etc., a hydrated basic sulphate of aluminium and potassium and a hard compact rock not unlike limestone at times, as a source of potassium sulphate and aluminium oxide. The raw material is calcined at a temperature of 800° to 1000° C. and leached for the recovery of the potassium sulphate. The other source is kelp, a sea weed which grows prolifically in groves on the sea bottom along the Pacific coast (*A. Y. B.*, 1912, p. 642; 1913, p. 655). It has been satisfactorily harvested by at least one company in the Puget Sound district for two years, who wash it free from sea salt, chop and sell it for potash fertilizer to the farmer. Endeavors are being made to combine the kelp with fish scrap for fertilizer purposes. The ash from the kelp is known to contain iodine, but a successful attempt to recover this and other possible products while getting the potash salts has not yet been developed commercially. Without doubt the present scarcity will encourage exploitation of the various methods which have been suggested of rendering available the potash of the common mineral feldspar, a hitherto difficult and expensive problem. Extensive potash explorations have been recently under way in France. Before the war it had been decided seriously to exploit the Galician deposits at Kalusz by a Lemberg company. The Catalonian deposits recently discovered in Spain are also receiving serious attention.

Soap and Glycerine.—One of the most interesting developments in industrial chemistry during the year is the introduction of the Krebitz process for soap and glycerine production. In the manufacture of soap, starting with original fats and fatty acids, glycerine is obtained as a by-product. For many years this glycerine was wasted, but its technical importance has increased rapidly since the development of modern explosives, with the result that the by-product from soap manufacture is now probably the most important single factor to be considered in soap making. In former soap processes for glycerine recovery the fat was treated with caus-

tic soda for the production of the sodium salt of the fatty acids in the fat, which we know as soap. In soap manufacture the soap separates at the top of the resulting aqueous mixture, especially after the addition of common salt. This salt addition is known as the "salting-out" process. The water solution of salt which is drawn off from beneath the precipitated soap contains the bulk of the glycerine and it is treated in the glycerine refineries for the purpose of recovery and purification. The rapidly increasing price of glycerine has caused careful attention to be given to the scrupulous recovery of all glycerine possible in soap manufacture. In the present soap making methods the glycerine left behind in the soap by the above precipitation, "salting out," etc., amounts to from three to six per cent. This glycerine is practically a dead loss and it is said to have the disadvantage that it makes the soap softer than it normally would be from the soap stock used. The new process which is just being introduced in this country and which has been successful in Germany, attacks the original fats with quick-lime and water. The saponification of fats with quick-lime is not new, especially for the production of glycerine, but in such processes care is taken to use an amount of lime insufficient to unite with all the fatty acids, and the resulting small amount of lime soap mixed with free fatty acids is subsequently destroyed by means of mineral acid for the recovery of all the free fatty acids. This process is known as the lime-autoclave process for free fatty acid and glycerine production and is carried out under pressure in suitable apparatus. It will be noticed that in this old lime-autoclave process stress is placed on maintaining the lime used at a minimum. This is because of the subsequent expense in neutralizing this lime with mineral acid. This is necessary because the lime-autoclave process aims at the production of free fatty acids for candle stock. It is not a soap-making process at all. Even the saponification of the fats into free fatty acids and glycerine in this process is accomplished by water (under pressure at elevated temperature), and a little lime is used to accelerate the reaction, not to be its prime mover. The new process is essentially a soap-making process. In it a sufficient amount of lime with water is used to form a lime soap with all of the fatty acids instead of only a small portion of them as in the lime-glycerine methods previously used. The result is a mixture, which is solid when cold, containing not only the lime soap but all of the glycerine. There is no watery layer as in ordinary soap-glycerine production. This product hardens and is granular in texture. The usual method of treating it is to grind it fine and pack it in percolators. These percolators are then extracted with water, since the lime soap is not soluble in water, with the result that the glycerine is recovered so completely that less than one per cent. is left in the soap. It has been found that the quality and especially the physical properties of the lime used exert an important influence on the texture and hence the percolation efficiency of the lime soap. The additional glycerine recovery makes the process highly attractive. The lime soap after glycerine extraction is simply treated with caustic soda, or more cheaply still, with carbonate of soda, which precipitates the lime as insoluble calcium carbonate and forms the sodium salts of the fatty acids present which we know as soap. Additional advantages for this process are claimed in that cheap or highly colored grades of fat may be used and from them a white soap be produced. If this works out in all cases it is the first process which has succeeded in making anything but brown soap from certain kinds of stock. The lime is said to act as a bleaching agent. The small amount of lime, in the neighborhood of one per cent., left in the soap, increases the hardness and therefore the wearing qualities of the soap—a distinct advantage for most purposes. The fact that the glycerine has been more completely removed also assists materially in this direction. One important soap manufacturer in this country is arranging to produce 12,000,000 lb. of soap per annum in a trial of this method.

Filter Press Design.—One of the fundamental operations of chemical

engineering is the separation of solids from liquids and one of the methods of accomplishing this is by filtration. Filtration itself has usually been commercially accomplished by the so-called plate or chamber form of filter press of 40 to 100 chambers. Between each pair of chambers in common types is a corrugated plate against which rests the filtering medium, usually a canvas-like cloth, the material to be filtered being pumped into the chambers between the cloths. When the press is ready to discharge, each chamber has become filled with the solid residue, which it was the object of the press to separate from the liquid. The great advantage of the machine consists in the large filter area in a comparatively small space. The capacity and therefore the value of a filter press is dependent upon this filter area and the time of filtration, washing and discharging. Speed or time of filtration and washing depends upon the nature of the materials handled. To increase capacity above that of this speed we have been compelled in the past to increase filter surface area. Increased pressure merely compacts the cakes, greatly diminishing further filtration. Another disadvantage of this type of machine is the labor and the time necessary to empty the chambers. This cleaning operation often exceeds the time of filtration. Until recently there has been little or no progress in the design of this type of apparatus. The appearance of the so-called sluicing type, a distinct step forward, did away entirely with the labor of discharging, the apparatus commonly being discharged by means of a jet of water permanently connected with each chamber. In the majority of chemical cases the press cake is desired as dry as possible. This machine delivers it thoroughly wet.

Another recent form is the clam-shell type. It consists of a horizontal outer cylindrical case split longitudinally, which clamps together like a clam-shell dredge bucket and opens again for the simultaneous discharge of all the cakes by reversing compressed air through the filter cloths, which surround fan-shaped porous filter leaves upon whose outside the press cakes collect. In some types of leaf filters the liquid to be filtered (outer-casing contents) is withdrawn when filtration is complete before wash water is admitted, resulting in operation difficulties connected with the holding of the wet solid on the leaves. This is overcome by not withdrawing this residue, but maintaining it reduced in volume by having clearing space within the press so small that by simply pumping wash-water in, without removing the unfiltered material or by displacing it by the wash-water itself, circulation within the press is uninterrupted and the solid deposits remain firmly attached to the filtering medium, from which they may be dislodged when desired (*Jour. Ind. Eng. Chem.*, 1914, p. 142). Still more recent is the suggestion by Dr. Burger to modify the old chamber type of press by reversing the washing procedure. In the common type of filter press, water is forced through the cake after filtration is completed, in the reverse direction from that of the formation of these cakes in the chambers. This gives rise to a rearrangement of the particles of which the cake is constructed, increasing the time of washing. Dr. Burger prevents this detrimental rearrangement by introducing the wash-water in the same place that the material to be filtered is introduced, and stopping the filtration while there is still a thin section unfilled down through the center of the chamber equidistant from each filtering surface. Then if wash-water is admitted at the center it will flow toward the filtering surface through all parts of the cake in the same direction as the previously flowing liquid. Actual operation reveals that this increases the efficiency of the press from two to three hundred per cent. It appears that this general idea has been in use before, but has been forgotten and lost sight of (*Met. Chem. Eng.*, 1914, pp. 101, 284). Another phase of the problem of washing the cake which has been formed in the filter press provided for in both the clam-shell and Burger type of press is the varying porosity of cakes due to segregation of the solid matter caused by slow flow in the chambers during the cake formation. The simple expedient of pro-

viding exit at the top of the frame or space for continual circulation of the solid-liquid mixture into the frames and out again during filtration is claimed to eliminate the sedimentation and give much more satisfactory washing efficiency. Another of the important conditions with which the operation of filtration must contend is the presence of a small amount of material to be filtered from a large amount of liquid. This is particularly important with sewage or trade wastes. An important mechanical method of performing this continuously is contributed by the Riensch-Wurl screen. This is a rotating screen disc tilted about 25 degrees from the horizontal, with a part of its area continually above the liquid being filtered. This liquid flows toward the screen's upper surface and the precipitate collects upon it while it is being slowly and continuously elevated out of the liquid as the screen revolves, the precipitate being constantly swept from the screen into a receptacle (*Met. Chem. Eng.*, 1914, p. 202).

The Fire-Damp Whistle.—As early as 1880 Professor Forbes in England suggested the displacement of the ordinary Davy safety lamp as an indicator of the presence of fire damp in coal mines in dangerous quantities by utilizing the acoustic properties of the methane gas or fire damp. The many suggested forms of apparatus for the detection of this dangerous gas have been too cumbersome or too complicated to withstand rough usage or have introduced, as does the Davy lamp, the danger of producing the explosion which they were designed to forestall. The Haber-Leiser fire-damp whistle, however, entirely avoids this danger. It is merely a brass cylinder in which are two brass reeds or tubes. One of these is filled to a certain point or diaphragm with pure air, the other is supplied with an equal volume of mine air to be tested and both are simultaneously blown with the same current of air by a hand pump. If methane is present beats are heard in the note produced by the carefully tuned reeds and when the explosion limit for methane content is approached the beating of the notes of the two pipes produces a characteristic "trill."

Perkin Medal Award.—John Wesley Hyatt on Jan. 23 received this medal for the invention and development of celluloid. Although he had no chemical training and never claimed to be a chemist, he developed a distinctly American and an essentially chemical industry. From this it must not be inferred, however, that there is unanimous agreement that Hyatt was the real inventor of celluloid. Many minds were working in almost identical channels at the time this class of materials was developed. It is only fair to mention in this connection the Englishman, Alexander Spill, for whom a formidable case can be made as being at least an independent inventor and developer of this industry, though Spill's champions give credit to Hyatt for his indefatigable and able development of the technic of celluloid. (*Jour. Ind. Eng. Chem.*, 1914, pp. 155, 440, 601.)

Miscellaneous Progress. — Ninety-eight per cent. nitric acid is now made from air at two plants in Norway. The use of the long-arc experiments has been abandoned. The possibilities of certain natural soda deposits are receiving commercial consideration. Among the published articles of general interest in the field of industrial chemistry are the work of Whitaker and Rittman on gasification (*Jour. Ind. Eng. Chem.*, 1914, pp. 383, 472; also pp. 490, 499); the toxicity of wood preservatives, the work of the U. S. Forest Products Laboratory (*ibid.*, pp. 128, 603); the present status of the wood-turpentine industry (*ibid.*, p. 148); and the cyanamid industry (*ibid.*, p. 415).

PHYSICS

C. E. Mendenhall

Tendencies in Physical Research.—During 1914 interest in physics has undoubtedly centered around the old and fundamental question of the structure of the atom. Not that any great and final step has been made toward its settlement, but rather that various lines of attack, experimental

and theoretical, have been directed upon it. Furthermore, while we shall consider the subject in the classical subdivisions, mechanics, heat, electricity and magnetism, light, etc., it will soon be evident that a considerable part of the work has been on the border lines, for example, photo-electricity, electro-optics, magneto-optics. All of this but emphasizes the artificiality of division lines in physical science, and explains the present tendency to express everything in electrical terms.

General Physics.—Interest in the very fundamental quantum hypothesis of Planck continues unabated, though as to the question of its necessity, or even its desirability, there is just as much difference of opinion as ever. There is perhaps more general agreement that the hypothesis is to be taken as indicating a characteristic of atomic structure, whereby energy is radiated discontinuously, rather than as indicating a discontinuous distribution of energy in space. Nevertheless two experiments (Kirschbaum, *Philos. Mag.*, March, 1914; McKeehan, *Phys. Rev.*, August, 1914) have been carried out, designed to test the Thomson hypothesis of string-structure of light waves and fields of electric force. In each case the results were negative.

As regards the development of the other form of the quantum theory, which involves, as has been said, time-discontinuities in the radiation of atoms and all other groups of electrons, most noteworthy has been the determination of two more numerical coincidences connecting the Planck quantum constant h with the discharge of electricity by light and the excitation of light by electronic bombardment. It is too soon to estimate the entire significance of these facts as a theoretical connection is almost entirely lacking. (See also XXII, *Mathematics.*)

Of general interest also is Tolmans' statement (*Phys. Rev.*, April, 1914) of a principle of similitude from which he is able to deduce several of the fundamental physical laws, though, as Buckingham (*ibid.*, October, 1914) points out, he is forced to make an arbitrary assumption as to the dimensions of temperature. Buckingham further shows that the "principle of similitude" is a consequence of the more general assumption of the necessity for "dimensional homogeneity" in a physical equation, that all terms must have the same dimensions in the fundamental units, and that this assumption has been oftentimes used before.

Cosmical and Geo-physics.—Most striking in this field is undoubtedly the experimental measurement by Michelson, Gale and Moulton (*Astrophys. Jour.*, March, 1914) of the warping or tipping of the earth's crust due to the solar and lunar attraction, a study of "tides" in the solid earth analogous to the observed tides in the sea. While this is by no means a new problem, the present attack is remarkable not only for the accuracy and completeness of the results, but for the simplicity of the method employed, which consisted in measuring the changes in level of water at the two ends of a long pipe buried in the ground. The result shows the earth as a whole to be more rigid than steel, and more rigid in the east and west direction than in the north and south, and bears very decidedly in favor of the conception of an earth effectively solid throughout, rather than of a body having a liquid core. (See also XXII, *Astronomy;* and XXIII, *Dynamic and Structural Geology.*)

Deeley and Parr have attacked another old problem, the flow of glaciers, in a series of papers (*Philos. Mag.*, Jan., 1914, *et seq.*) on the Hintereis glacier, in the course of which they study the sliding of ice in a miniature artificial glacier over rough stone, in which case "regelation" (or melting, flow and refreezing) is shown to be responsible for the motion.

Mechanics.—Two new "ether" experiments may be noted, though both gave negative results. One by C. V. Burton (*Philos. Mag.*, May, 1914) looked for a diurnal swing of a suspended plate, such as would be predicted by a direct application of hydrodynamics to the ether; the failure to observe it means a mistake in the premises. The other by Sagnac (*Jour. d. Phys.*, March, 1914), involving the rotation of a complete interferometer, source, mirrors and recording photo-

graphic plate, purported to be a test of relativity; but this was quickly shown to be wrong, since rotation, involving as it does relative motion of parts of a system, is not included in the generalizations of relativity. Further problems in mechanics have had largely to do with atomic structure or with impact of atoms, as, for example, Darwin's discussion (*Philos. Mag.*, March, 1914) of the impact of α particles (Helium atoms) with other atoms of low atomic weights, the general conclusions of which were verified by Marsden (*ibid.*, May, 1914).

Heat.—Bridgman (*Phys. Rev.*, Feb. and March, 1914), continuing his studies of the pressure-volume-temperature relations, has examined 11 new substances and has found six new allotropic forms; has shown that a method by which Tamman attempted to decide indirectly as to the existence or non-existence of allotropic crystal forms is not in general applicable; has further shown that the idea of corresponding states as developed from the quantum hypothesis to fit recent specific-heat work, does not hold in the region studied by him (up to 200° C. and 12,000 kgm. per sq. cm. pressure); and finally has found no evidence either for the existence of a maximum or an end (critical point) to the melting-point curve. There is so far nothing to indicate a critical point for the equilibrium between a solid and a liquid phase of a substance. Tolman (*ibid.*, Aug., 1914), using the principle of similitude, has deduced an equation practically identical with Debye's, showing the temperature variation of the specific heat of solids; the quantum idea is not made use of, but certain other rather unsatisfactory assumptions seem to be necessary. Callendar (*Philos. Mag.*, May, 1914) gives a very interesting thermodynamic development of an equation expressing the radiation of a perfect radiator as a function of temperature and wave-length, an equation which fits the facts about as well as Planck's, and which does not depend on the quantum hypothesis. Unfortunately the development does involve one rather arbitrary assumption. The question of the validity of Planck's radiation law and the values of its constants has been considered by Coblentz (*Bull. Bur. of Standards*, Jan., 1914), who discusses all available data, his conclusion being that 75 per cent. of the reliable energy-distribution curves fit the Planck equation, and that the best value of C_2 is about 14,420, though there is very considerable discrepancy among individual determinations.

Electricity.—One of the most obvious and most fundamental electrical problems is the general one of the electrical conductivity of metals. The growing confidence in the electron theory gives a continued stimulus to experimental and theoretical work dealing not only with the simplest characteristics of conductivity but with its more elusive complexities, such as the Hall effect, the change of resistance produced by a magnetic field, the change of resistance produced by light (notably in selenium), and the passage of electricity from the bounding surface of a metal into a vacuum, induced either by the action of heat (thermionic) or by light (photo-electric). The simple form of the electron theory accounts fairly well for the general property of conductivity, and for the general facts of thermions and photo-electric discharge, but fails when pushed to details. The Hall effect has been the subject of an interesting theoretical paper by Adams (*Philos. Mag.*, Feb., 1914), and Fenninger (*ibid.*, Jan., 1914) has shown experimentally that the effect in liquid mercury must be even smaller than had previously been found. Hall (*Phys. Rev.*, June, 1914) has changed the fundamental assumptions and developed a theory according to which the "bound" electrons are largely responsible for the conductivity and the "free" electrons for the thermo-electric properties of metals. Still another very interesting point of view has been developed by Decombe (*Jour. d. Phys.*, Feb., 1914), according to which the conducting or "free" electrons are only present when an electric field acts on a metal. In this connection should be mentioned a very striking experiment of Kamerlingh Onnes, in which use is made of his previously discovered condition of "super-conductivity" of lead, tin and mercury when

cooled by liquid helium to temperatures below 5° K. Using such "super conductors," whose electrical resistance is vanishingly small, in the form of a closed coil, he found that a current, started by the motion of a magnet, would persist undiminished for many hours, thus forming a rather startling model of the molecular magnets of Ampère.

There has been a distinct advance in the experimental study of change of resistance in a magnetic field, in so far as Jones and Malam (*Philos. Mag.*, April, 1914) and later Heising (*Phys. Rev.*, Oct., 1914) have succeeded in really separating the effect produced when the magnetic field runs lengthwise of the wire, from the effect of a field transverse to the wire. In further researches at the temperature of liquid helium Kamerlingh Onnes has studied both the transverse and longitudinal changes in the resistance of "supra-conducting" lead and tin; in this case there is a very marked increase in resistance produced by weak fields of from 200 to 1,000 gauss, either transverse or longitudinal; the effects are probably not directly analogous to the corresponding ones observed at ordinary temperatures.

The peculiar property of changing electrical resistance upon exposure to light, possessed most markedly by selenium, has been the subject of much recent experimentation. The net result is to show that the phenomenon is even more complicated than was supposed (*cf.* Brown and Sieg, *Phys. Rev.*, July, 1914; Nicholson, *ibid.*, Jan., 1914) and that we are still far from a satisfactory understanding of it. Most hopeful is Brown's work (*ibid.*, Aug., 1914) on the production of many different crystalline forms of selenium, and it seems probable that this will be the beginning of a real simplification of the conditions of experimentation encompassing the problem, and hence of a glimpse of its real essence.

Ever since the discovery of the discharge of electricity produced from metals by light there has been a difference of opinion as to whether the effect was a direct action of the light on the metal, or whether the gas layer on the metal surface played the primary rôle. After 25 years of elaboration, discussion has in 1914 gone back to this fundamental question. Küstner (*Phys. Zeit.*, Jan., 1914), Hallwachs and Wiedman (*Verh. Deutsch. Phys. Gesell.*, Jan., 1914) and especially Fredenhagen (*Phys. Zeit.*, Jan., 1914, et seq.) attempted to show that the discharge of electricity from potassium by light ceased entirely when sufficient care was taken (by repeated distillation or boiling in vacuo) to remove the last traces of "active gases" from the metal and the space around it. On the other hand, Pohl and Pringsheim (*Verh. Deutsch. Phys. Gesell.*, April, 1914) find that the selective activity of potassium remains unaltered after boiling in an extremely good vacuum for 430 hours. Furthermore, Millikan and Souder (*Phys. Rev.*, July, 1914), working with freshly scraped surfaces of sodium in a high vacuum, find that for wave-length 5461 Angstrom units, the initial sensibility of a fresh surface is zero, but increases upon exposure to the residual gas, but that for λ 2536 the initial sensibility is high, but decreases upon exposure, and they conclude that the gas layer is important for the action of long waves, but not for short. Intimately connected with this problem are the observations of Hughes (*Philos. Mag.*, Sept., 1914) upon the contact potentials of bismuth and zinc distilled in vacuo. He finds that the freshly distilled surfaces are very slightly electro-negative with respect to platinum (i. e., they naturally tend to acquire a negative charge), but upon exposure to the merest trace of air they assume their usual electro-positive values. According to this, the removal of the gas layer makes it more difficult for the photo-liberated electron to leave the surface unless excited by a very short wave-length, as Millikan found. Unfortunately there is apparently a flat contradiction between the results of Hughes and those of Hennings (*Phys. Rev.*, Sept., 1914), according to whom metals prepared in vacuo become more electro-positive. On the whole the evidence seems to be in favor of the hitherto current view that photo-electric sensitiveness is a real property of the metal itself, and further that contact potentials

are characteristic of metals and not of electrolytic surface conditions. Of great interest is the fact that Millikan (*ibid.*, July, 1914) finds that the energy of the discharged electrons is directly proportional to the frequency of the light used to discharge them, and that the factor of proportionality is numerically almost identical with the value of the quantum constant h deduced by Planck from radiation observations.

Light.—The most striking advance in this field is the discovery that an electric field causes the "splitting" of an emission line into a number of components; the analogy to the Zeeman effect, or splitting by a magnetic field, is evident, but the separation of the "electrical" components is much greater, being in some cases about four times as great as the separation of the two sodium lines. The credit for this discovery apparently belongs both to Stark (*Ann. d. Phys.*, xliii, 965, *et seq.*) and Lo Surdo (*Phys. Zeit.*, xv, 122, *et seq.*), who independently hit upon the same thing. The amount of separation is in general linearly proportional to the applied electric field, and the breaking up is more complicated when viewed at right angles to the field than along the field. In the end this effect will doubtless help largely in forming our concept of the actual mechanism of emission. Even now certain characteristics of this mechanism seem to be fairly well settled; for example, various lines of attack agree in showing no observable viscous friction opposing the motion of the radiating electrons (Webster, *Phys. Rev.*, Sept., 1914; also Wood, and others), and that, on the other hand, the mere damping by radiation is not sufficient in most cases; there remains apparently only the effect of impact of atoms or molecules to account for the further changes of electronic vibratory energy into energy of molecular motion (heat). In the case, however, of resonance in rare vapors (Wood) or rare helium (Paschen, *Ann. d. Phys.*, xxi), impacts have such a small effect that practically all of the light energy absorbed is reradiated as light of the same wave-length. There are only a few examples of such efficient reradiation known, to which Paschen has just added the 1 μ line of helium (see *infra*).

In studying the impact of electrons on mercury atoms (vapor), Franck and Hertz (*Verh. Deut. Phys. Ges.*, xi) have discovered that if the velocity of the impinging electrons is below a certain limit (corresponding to a drop of four volts), no light is emitted from the vapor, while with a higher velocity (six volts drop) there is considerable emission, but all of the wave-length 2536, the resonating line. From other considerations they decide that 4.9 volts measures the "critical energy" necessary to produce emission of light and ionization. This critical energy is related to the frequency of the 2536 line in just the way demanded by the quantum hypothesis, namely energy $= h \times$ frequency. The idea is that if an impinging electron possesses just this amount of energy, it will *all* be used in ionizing and radiating; otherwise *none* of it will be so used. While even the approximate agreement with the quantum idea is very interesting, the exact coincidence is still open to considerable question.

Turning to other parts of the field of optics, Livins (*Philos. Mag.*, March and June, 1914), continuing his discussions of the effect of neighboring particles on the vibration of electrons in atoms, has given a theory of the rotation of the plane of polarization by isotropic unmagnetized media, obtaining results which agree with many observations, but which do not satisfy Bruhat (*ibid.*, Aug., 1914). Wood and Ribaut (*ibid.*, June, 1914) in a careful study of the magnetic rotation by iodine vapor find the rotation is of the same sign on opposite sides of the absorption bands, and Wood and Dunoyer (*ibid.*) have brought out the very interesting fact that the two sodium lines D_1 and D_2 may be separately excited by optical resonance, while Paschen (*Ann. d. Phys.*, xxi) has shown that the helium line of wave-length 0.001 mm. may also be excited by resonance, though, in contrast to mercury and sodium vapor, helium must be ionized by the passage of a weak electric current before it will reëmit (resonate) the incident light of .001 mm. wave-length. Lyman has extended the re-

gion of known wave-lengths from 1,200 Angstrom units down to 900 A. u., while Birge (*Astrophys. Jour.*, Jan., 1914) has greatly increased our knowledge of the band spectrum of nitrogen, and Crew and McCauley (*ibid.*) have made an elaborate series of wave-length measurements in the calcium vacuum arc spectrum.

X-Rays.—The fundamental fact of the wave nature of X-rays having been settled (*A. Y. B.*, 1913, p. 669), work this year has been in the way of using the rays to reveal the arrangement of atoms and molecules in crystalline solids, and to give additional information about the constitution of atoms themselves. In this last field the most extensive contribution is that of Moseley (*Phil. Mag.*, Dec., 1913, April, 1914) on the high-frequency spectra of the elements. Some sixty-odd elements, ranging in atomic weight from aluminium to gold, were used as the "target" in an X-ray tube, and the rays sent off from them examined by reflection from the face of a crystal of potassium ferrocyanide, as first suggested by Bragg. The crystal acts as a "space-grating," and under proper conditions sharp "lines" are produced on a photographic plate, corresponding to the various wave-lengths present in the original beam. Various ingenious modifications of this method have been suggested by de Broglie and others. The resulting X-ray spectra, while by no means fully known as yet, seem to be always characterized by two prominent wave-lengths, whose frequency varies in a simple way from element to element, being always proportional to the square of an integer N which gives the position of the element in the order of ascending atomic weights. This integer is called the atomic number and is taken as 13 for aluminium. The evidence indicates that there are only three gaps, that is, undiscovered elements between aluminium and gold. The shortest wave-length measured, one of the lines of silver, is .56 x 10^{-8} cm., about 1/1600 the length of the shortest ultra-violet light wave mentioned above. As shown by Rawlinson (*ibid.*, Aug., 1914) these lines are probably all double. The most striking thing about the X-ray spectra, aside from the relation pointed out, is their relative simplicity compared to the corresponding optical spectra of the elements. This accounts for the tremendous interest they have excited, for it indicates that they probably emanate from some relatively simple common constituent of all atoms (see *infra*). Unfortunately further research will probably dispel this impression of simplicity. As regards crystal structure, Bragg (*Engineering*, June 12, 1914) and others have worked by the reflection method, and Ewald (*Phys. Zeit.*, April 15, 1914) and others by the transmission method of Laue; in many crystals the placing of the various atoms is now quite definitely known, and some results indicate the relative unimportance of the molecule in so far as the different atoms are spaced equally, and not as close molecular groups, as, for example, in rock salt (see also XXII, *Mineralogy and Petrography*).

Radioactivity.—The most interesting developments in this subject have been of the nature of detailed study of the β and γ radiations (emitted electrons and natural X-rays) from various radioactive substances, and the attempt to connect quantitatively these two types of ray on the basis of the quantum theory. Rutherford and Andrade have determined by the crystal reflection method the wave-length characteristics of the soft (*Philos. Mag.*, May, 1914) and the hard (*ibid.*, Aug., 1914) rays from radium B and radium C. The soft rays from radium B are of course longer than the hard, and have a number of well marked lines quite similar to the X-ray spectrum of platinum or other heavy metal; there is some evidence that it is identical with the spectrum of lead, which would mean that the atomic number is the same as that of lead. The hard γ rays from radium B and radium C are all of shorter wave-length than any X-rays so far produced by electrical bombardment of metals, the shortest from radium C being only one-eighth as long as the shortest measured X-ray, and 1/13000 of the shortest ultra-violet light wave. If one assumes in accordance with the quantum hypothesis that the energy of the impinging β particle (electron) equals the quantum constant times

the frequency of the resulting γ ray, it follows that 180,000 volts applied to an X-ray tube should give X-rays of the same wave-length and penetration as the most penetrating γ rays. With the new Coolidge tube it will probably be possible to do this. The velocity of the β rays from radium B or radium C is considerably greater than this. Rutherford and Robinson have also examined (by magnetic separation) the β rays given off by lead when excited by the γ rays from radium emanation, and find that about half of the distinct groups of β rays are almost identical, as regards velocity, with groups in the β ray emission from radium B; which is further evidence of the close similarity between radium B and lead, though their atomic weights differ by seven units. For other metals the excited β rays were very different. This and other evidence indicates strongly that the final product in the uranium-radium family is lead, but the evidence that it is also lead in the case of the thorium family is so far very slight (Holmes, *Nature*, April 2, 1914; Lawson, *ibid.*, July 2, 1914). In *Le Radium* (Jan., 1914) Kalowrat has published a very complete table of radioactive data and constants.

Atomic Structure.—Interest in this field has centered around Rutherford's hypothesis of a nuclear atom, suggested in 1911 to account for the nature of the scattering of α particles in passing through gases. According to this hypothesis atoms consist of a relatively very small nucleus (estimated diameter less than 2×10^{-13} cm.) surrounded by relatively distant electrons. Late in 1913 the idea was put in more definite theoretical form by Bohr (*Philos. Mag.*, xxvi), who supposed the electrons to have certain definite paths of rotation around the nucleus, this rotation not being accompanied by any emission of light. Emission only occurred when an electron, due to some external disturbance, passed from one equilibrium path to another, and the various paths were so taken that the difference in energy content of the electron in any two paths, divided by the quantum constant h, gives the frequency of one of the known spectral series lines of the atom. Bohr has still further extended his theory (*ibid.*, March, 1914) to account for the action of a magnetic field (Zeeman) and an electric field (Stark, Lo Surdo) on the emission of light (see *supra*). The theory is a mixture of mechanics and non-mechanics, since the motion of the electrons in their equilibrium paths is determined by mechanical laws, while the passage from one path to another is entirely undetermined except as to the supposed emission of light according to the quantum theory. Opinions as to the ultimate value and truth of Bohr's hypothesis differ greatly, and it has already called forth an extensive literature. At first sight it looks merely like an arbitrary model giving a series line emission by hypothesis. Nicholson (*ibid.*, July, 1914) considers that it is not entirely self-consistent, and that it can so far do little more than account for the Balmer's series of hydrogen. Nevertheless there are many striking ways, both qualitative and quantitative, in which it fits the facts. The resultant positive charge of the nucleus is now very generally supposed to be numerically equal to the atomic number of the element as above defined; this suggestion was originally due to Van den Broek (*Phys. Zeit.*, xiv, 32), and Bohr (*Philos. Mag.*, Dec., 1913) has supposed that the chief line of Moseley's X-ray spectrum could be accounted for by a ring of four electrons rotating around a nucleus thus charged. But Nicholson (*ibid.*, March, 1914) concludes that it is so far impossible to find any satisfactory connection between Bohr's theory and Moseley's X-ray spectra, though the general idea that the properties of an atom are determined by its nucleus charge, or some simple function of it, rather than by its atomic weight, is borne out by many lines of reasoning (see "Radioactivity," *supra*). A very interesting summary of much of this work is given by Rutherford in the *Philosophical Magazine* for March, 1914; also in a later discussion of the subject by a number of authorities, separately printed with the *Proceedings of the London Physical Society*, June, 1914.

XXV. THE BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

W. L. Tower

General Survey of Activities.—As in the past ten years, the chief activities in investigation center around the phenomena of heredity, and with increasing intensity about the behavior in inheritance which we have come to know as Mendelian. Within the year 1914, however, no new developments in this field that are striking have appeared, but rather the publications as far as they have come to us indicate much in the adding of data, and in strengthening the conceptions already established, rather than extending them. In the field of the special hypotheses of evolution no special change in the situation has taken place, and on the whole the literature of the year is scanty and inclined to be the pleading of the advocate for the special conception. One sees, however, an increasing use of the newer aspects, especially the developments in heredity, the pure-line conception, and the rôle of "mutation," in the practical operations, and investigations in applied portions of biology, agriculture, eugenics, and medicine. In the application of these new genetic principles to the problems of improvement of plants and animals of economic value, very pleasing progress is being shown at nearly all the establishments devoted to the progress of agricultural science in both America and Europe; in the latter especially, some of the best pure investigation is produced in agricultural institutions, especially in Germany and Austria. In the eugenic field the most striking aspect is the willingness to accept as true data that are of doubtful validity or even obviously not of critical character, and the furor to legislate upon any and all aspects of the problems of human society, regardless of the soundness of the principle upon which the legislation is based, and always with the naïve assumption that the human race in constitution, and society in organization and behavior, can be rapidly and permanently altered by legislative edict from its present to what is assumed to be an improved condition. Through it runs an oppressive morbidity in relation to sex and sex questions, no end of misconception of the biological meaning of sex and the rôle of sex in human society, and a disregard of the fact that among the earth's human tribes many codes of ethics regarding these intimate personal relations have been developed, each good for the possessor thereof; who among us is wise enough to decide which is the better? In America it seems as if the code of the New England Puritans is taken on purely *à priori* ground as the sole true standard. The eugenic literature is amusing if not instructive and the dross very far outweighs the really valuable content. It is of interest to note the establishment of a new *Institut für Vererbungsforschung* in Berlin under the directorship of Prof. Edward Baur for the experimental study of heredity in plants and animals.

General Evolution Hypotheses.—The conceptions known as neo-Lamarckianism, neo-Darwinism, and orthenogenesis, have received no addition to their content or in confirmation during the year. Minor papers, mainly of an argumentative nature, appear sporadically, adding little or nothing to the already stupendous literature upon these hypotheses. The mutation hypothesis continues to be a topic of active investigation and discussion. During the year 1914 the chief activities have been those of Davis and

Gates, who have continued their attempts to determine the nature of *Oenothera Lamarckiana* but without conclusive results. DeVries has presented (*Bot. Gaz.*) an excellent account of the taxonomy of his material, which, as far as taxonomic study is able, establishes the fact of the existence of this species in its present form for at least a hundred years. However, the belief seems to be increasing that this plant, showing in such striking manner the mutation behavior, is of hybrid origin. The attempts of Davis to create the plant anew through hybridization would have little significance unless the new creation showed the mutating behavior, and this aspect of the problem seems to be largely lost sight of.

Probably the most interesting contribution, and certainly one that has aroused and will continue to arouse abundant discussion, is found in the presidential address of Prof. William Bateson, at the meeting of the British Association for the Advancement of Science at Melbourne. Numerous partisan reviews have unfairly and in misleading fashion characterized his "theory" as "topsy-turvy evolution" and "special-creation anew" without presenting fairly Bateson's position, and give the reader the impression that it was advanced as a comprehensive theory of evolution, which is not true. Bateson, after reviewing the developments in the field of Mendelian inheritance, facts that are experimental verifications of behavior of organic characteristics in inheritance, simply offers certain suggestions for consideration, which are logical suggestions for further thought and investigation. After discussion of the recognized fact that in many instances evolutionary change takes place first by a sudden rather large departure, and that subsequently intergrades between this departure and the parent arise through the "fragmentation" of the newer type, he makes his position very clear in the following sentences:

> In spite of seeming perversity, therefore, we have to admit that there is no evolutionary change which in the present state of our knowledge we can positively declare to be not due to loss of characteristics. If then we have to dispose, as seems likely, with any addition from without, we must begin seriously to consider whether the course of evolution can at all reasonably be represented as an unpacking of an original complex which contained within itself the whole range of diversity which living things present. I do not suggest that we should come to a judgment as to what is or is not probable in these respects. . . . But as we have got to recognize that there has been an evolution, that somehow or other the forms of life have arisen from fewer forms, we may as well see whether we are limited to the old view that evolutionary progress is from the simple to the complex, and whether after all it is conceivable that the process was the other way.

The defect of Bateson's conception lies in the utilization of data derived entirely from the investigations of Mendelian behavior in inheritance, which are apparently only a portion of the phenomena that are concerned in evolutionary processes, even though not so intensively and expensively investigated at present. If perchance it should prove to be true that this conception of Bateson's is correct, it is in effect the reëstablishment of the ancient doctrine of causative creation, and evolution simply the unfolding and release of potentialities implanted in living materials at the beginning, regardless of the effective cause of that momentous event in this planet's history. It does not seem probable that many will become devotees of this conception, nor that there is any likelihood that it will be erected into another hypothesis of organic evolution. It seems merely the interesting logical deduction into which Bateson has been driven by a too narrow and partisan outlook and interest upon phenomena comprising only a small portion of the mass of activities comprised within the different aspects of organic evolution.

Evolution of Species.—Among the discussions of the year dealing with the problem of species, which are mainly interpretative of the possible origin, may be mentioned a paper by O. F. Cook, "The Existence of Species" (*Jour. Her.*), in which he discusses and extends his conception of the polyphyletic origin; in the same journal, C. C. Young gives an interesting account of the origin of the Karakul sheep,

and L. Trabut contributes an interesting paper on the origin of cultivated oats, showing something of the ancestry, the action of environment and of culture, with the possible rôle of mutation in the rise of varieties. A. C. Chandler (*Am. Nat.*) presents the results of his studies of the effects of the extent of distribution, and these findings are interpreted as being due to time, isolation, induced changes produced through the action of extrinsic agents, and intrinsic changes due to the changes in habit and mode of life. The plausibilities are interesting, if not convincing. J. H. Gerould in the same journal, under the title "Species Building by Hybridization and Mutation," shows how the results of his studies in the crossing of species of *Colias* and their polymorphism apply in the interpretation of other somewhat similar examples among Lepidoptera.

Adaptation.—This topic, long a favorite with students of evolution, seems to be losing favor, and aside from the usual annual crop of "cases" of mimicry described by the English entomologists and attributed to the action of selection, little is presented in the publications of the year save a paper by J. F. Abbott, in volume I of the Washington University Studies, who concludes from a study of mimicry in the genus *Liminetis* that there is no evidence that selection has been operative in the series that he studied.

Selection.—This subject likewise in the literature of the year makes little advance and receives little in the way of added data. Most noteworthy is the contribution of E. M. East and H. K. Hayes (*Am. Nat.*), "A Genetic Analysis of the Changes Produced by Selection in Experiments With Tobacco." The authors after an extensive series of experiments show the practical value of the pure-line method to the breeder and agriculturist, and the rôle that selection may play in the purification of pure lines. A. L. and A. C. Hagedoorn (*Zeitschr. für indk. Abst. und Vererbungslehre*, xi) give an extensive criticism of Castle's work with hooded rats, in which he maintained that positive effects of selection were obtained. The authors, upon the basis of experiments of their own and Castle's data, maintain that the results found by Castle are due to the isolation of pure lines and not to the action of selection. In that two different stocks of animals were used, it is not improbable that both Castle and the Hagedoorns' data may be correct as far as their experimental findings are concerned; to be conclusive the latter investigators should test their views upon Castle's materials and *vice versa*.

Variation and Mutation.—The publications in this department, although fairly numerous during the year, are on the whole additions of more data to the present status of knowledge rather than extensions of principles, and have to do largely with the description and analysis of the methods of origin of larger variations. From the statistical investigation of the variation problem nothing of note has been accomplished during the year. Especially interesting is the work of T. J. Stomps (*Am. Nat.*), giving the results of his breeding experiments with European *Oenothera biennis*, from which he has secured several mutants, a dwarf form, a gigas-like form, the form sulfurea and others, the whole array in some respects simulating the mutations found by De-Vries in *Oenothera Lamarckiana*. The rise of the gigas-like form is especially interesting and may suggest to us that in both *biennis* and *Lamarckiana*, the mutation process has much in common. R. Gates has continued his investigations of the *Oenotherae* (*Zeitschr. für indk. Abst. und Vererbungslehre*) and has attempted to show that hybridization and mutation are independent phenomena. He holds that the mutation behavior in *Oenothera* is not the result of a complex hybrid organization, as held by Davis, Nilsson-Ehle and others. The problem is, however, still far from solution.

H. K. Hayes (*Jour. Her.*) gives his results of the study of variation in tobacco, and comes to the general conclusion that both heredity and environment are involved and must be considered in the origin of new types, but that crossing is the more potent agent. H. Huss (*Am. Nat.*) describes the rise of the biotype *arachnoidea* from the parent plant *Bursa bursa-pastoris*, showing the manner of factorial arrangement that produces it. H. H. Lewis (*Agr. Jour. Union of S.*

Africa) describes the rise of the Bustin Black Pritas breed of poultry, and C. W. Mitchell and J. H. Powers (*Jour. Exper. Zoöl.*) have given in detail their results in experiments with the rotifer *Asplanchna*, showing the transmission through the sexual as well as through the parthenogenic generations of the experimentally produced hump form. I. B. Sollas (*Jour. Gen.*) gives further results of his studies of the dwarf race of guinea pigs.

Heredity.—This literature is by far the largest in the field of organic evolution of the year, many excellent pieces of work being recorded, covering a wide array of plants and animals, but with no essential extension or change in the general principles. G. N. Collins (*Jour. Her.*) discusses in clear manner the nature of the Mendelian units and argues for the existence of complexity in the factors, while O. F. Cook in the same journal takes a rather different view, holding to his position that there are much blending and mixing of characters from polyphyletic sources, assuring us that "the assumption that characters are pre-existent in the protoplasm of the germ cells as discrete particles or as independent units is not justified by observation or logical necessity," and that characters are to be thought of as lines of descent instead of discrete particles. E. Fischer (*Anth. und Eth. Studien am Rehobother Bastardvolk im Deut. Süd-west Africa*, Jena) gives many interesting data of the crossing of human races, finding no racial prepotency but rather the apparently uniform action of Mendel's law in many characters. Along the same line are cases cited by P. Poponoe (*Jour. Her.*) of the crossing of Polynesian and German stock. M. M. Boyd (*Jour. Her.*) and C. Goodnight (*ibid.*) give data on the crossing of the bison and cattle, and the latter writer expresses it as his experience that the F, hybrid is greater in weight, eats less, gives better meat and does not get tough, and that the animal is docile and can do without water longer than cattle, making it a valuable meat-producing animal in these respects. W. Haynes (*ibid.*) gives results of inbreeding in dogs, and C. C. Little (*ibid.*) presents the analysis of inheritance in dogs as obtained from the stud books, from which it seems that the hereditary relations of black and brown coat color are the same as in other mammals and that there are two types of yellow. Practical rules for color breeding in dogs are also given. W. E. Castle (*Am. Nat.*) describes new variations in the coat color of rats and guinea pigs and their relations to the problems of color inheritance. R. H. Thomas (*Jour. Gen.*) gives his incomplete results in the inheritance of secondary sexual characters in pheasants, apparently showing that the inheritance is due to segregating gametic factors.

Among the invertebrate forms, W. Bowater (*Jour. Gen.*) gives his results from the examination of 211 species of Lepidoptera in which melanism is found, and finds that it is usually a Mendelian dominant but is sometimes recessive. R. K. Nabours (*ibid.*) gives results showing the operation of Mendelian behavior in the color patterns of the grouse locusts.

In plants, R. P. Gregory (*Proc. Roy. Soc. Lond.*) gives interesting data of the rise and composition of tetraploid plants in *Primula sinensis;* G. H. Shull (*Deut. Bot. Gesell.*) describes the behavior of leaf color in *Melandrium album* and *M. rubrum*, which is Mendelian, and (*Zeitschr. für Abst. und Vererbungslehre*) describes the action of duplicate genes in the production of capsule form in *Bursa bursa-pastoris.* Here capsule form is produced by either one of two independent Mendelian determiners, and when both are absent the form *heegeri* appears. There is also an interesting discussion of the relations and significance of plural and duplicate genes, which, however, is valuable only as a working hypothesis. W. E. Castle (*Jour. Gen.*) describes an apple chimera, between Golden Russet and Boston Stripe, apparently an ordinary case of a chimera, arising from a graft hybrid. O. F. Cook (*ibid.*) describes the inequality in the sex ratios of hemp, showing the greater mortality in the male plants, which is suggested to be due to some sex-limited environmental character, and that it is an advantage to the female for the males to die; he regards the case of one of "reversed effects of selection."

The publications of the agricultural stations contain many records of the operation of the Mendelian principles in the crossing of plants and animals, but usually with no critical analysis, and of value only as showing the increasing breadth of action of these methods of hereditary behavior, so that we may now state without fear of contradiction that at last there is a conception of a portion of the mechanism of inheritance that is accurate in operation, capable of analysis, and of application to many of the problems of plant and animal breeding and improvement, and to the problems of human populations.

Heredity and Sex.—These investigations follow the same lines as in the past few years in the attempt to analyze the phenomena from the point of view of the Mendelian hypothesis. L. Doncaster (*Jour. Gen.*) has given further data concerning the classic case of sex-limited inheritance in *Abraxis grossulariata*, especially the study of the chromosomes. These studies in the main confirm his previous findings and extend them. He finds 55 chromosomes in the females of female-producing races, and in races that are male and female producing 56; all males apparently have 56, so that the female appears to be, as far as cytological evidence goes, heterozygous for the accessory chromosome, thus confirming the tests of breeding experiments. One interesting echo of some of the older views upon sex and inheritance of sex appears in a paper of P. J. Webster (*Jour. Her.*) in which he describes the work of Prof. Theophilus Ciesuíski of Lemburg, done between 1871-1878, which has apparently remained buried or very little known. The author holds that sex is determined by the age of the gametes at the time of fertilization and claims to have tested the hypothesis in long series of experiments in plants, animals and man, concluding from these experiments "that the sex of the progeny is governed by the conditions of fecundation, . . . the sex in animals is determined by the age of the spermatozoon at the time it unites with ovum." Thus, in *Cannabis sativa*, "129 seeds derived from fertilizations with fresh pollen gave 112 plants, of which six were male and 106 were female, but 96 seeds derived from fertilization with stale pollen produced 89 plants, all female. These experiments were repeated many times with the same results, we are told. In view of the fact that in late years we have come to hold that sex is the product of the nature of the gametes and not determined by outside influences, it would be of interest to have repeated these experiments in which results are obtained of so positive a nature and apparently so conclusive.

T. H. Morgan and his co-workers continue their studies of the mutations and sex-linked characters in *Drosophila*. Morgan (*Jour. of Exper. Zoöl.*) has described another, the third, lethal factor, that he has discovered in these cultures; H. J. Muller (*ibid.*), the rise and behavior of new wing characters; R. R. Hyde (*ibid.*) the conditions in fertility and sterility; and C. W. Metz (*ibid.*) the chromosome conditions. These many characters that are arising in this interesting project of Morgan's are apparently grouped, the characters of the different groups behaving as Mendelian segregates. As a working hypothesis these are conceived of as being located in chromosomes, the determiners having exact positions upon the chromosomes; and in many cases the experimental findings are strongly suggestive that something of this kind exists. (See also *Zoology, infra*).

Evolution Principles in Relation to Eugenics.—If the year's progress in this direction were in direct ratio to the amount of publication thereon, we as a population would now be moving towards a millennium at a prodigious velocity, so great that we would probably not be able to stop on arrival, and would no doubt go clear around and back to the same old, prosaic, comfortable human standpoint. G. VanHoffmann, in *Eugenics in Germany*, dwells much upon the declining birth rate, the danger of "undesirable marriages," and the desired "eugenic marriage." F. H. Hankins (*Jour. Her.*) also discusses the declining birth rate, although he finds that the "better" classes tend to marry more frequently and earlier than they apparently have done, but that the number of births is declining, due to "psychological restraining factors" or the contest of the interests

of the individual *versus* the interests of the race. J. H. Chase (*Jour. Her.*) gives another study of the statistics regarding the "weakness of eldest sons," drawn from the statistics of physical examinations at Amherst College, in which the author thinks that the data show that younger sons are superior to the first-born, and that the age of the parents at birth has no apparent effect upon either. W. F. Wilcox (*ibid.*), in "Differential Fecundity," attempts to show how "native Americans" are dying out in the United States, and the supposed evil influence of cities where there are fewer births per unit of population. R. H. Johnson (*ibid.*), in "Marriage Selection," attacks the effects of the system of education in vogue, maintaining that man should be made independent earlier, educational institutions made coeducational, motherhood extolled, and cynical sex teaching avoided. In the same journal A. G. Bell in a general discussion tells us how to improve the race. O. F. Cook, however (*ibid.*), in "Eugenics and Breeding," asserts with some justification that the methods of the plant and animal breeder are not applicable to human populations, since there is a different end in view in the human, in which diversity is desirable and to be sought for, while in the plants and animals of the breeders' establishments single uniform lines for specific purposes are desired. Cultivation of a "eugenic instinct" seems more important to Cook than weeding out the defectives of the population. E. E. Thorndike, in his work, *Mental Work and Fatigue and Individual Differences and their Cause* (Publ. of the Teachers College, Columbia University) gives a really excellent discussion of the immediate effects of ancestry and the action of Mendelian inheritance in these mental traits. F. A. Woods, in *The Influence of Monarchs* (Macmillan Co.), shows that the royal blood considered as a unit is superior to that of any other in the nation, considering especially the royalty of the eleventh and twelfth centuries, and concludes that this is "an overwhelming demonstration" of the importance to the country of "best blood."

The eugenic legislation of the United States is compiled in two useful papers, useful chiefly to show the conflicting and ill digested type of legislation that is being placed upon our statute books. Smith and others ("Summary of the Laws of the Several States Covering Eugenic Legislation," Bull. Univ. of Wash. No. 82) and H. H. Laughlin ("Legislative and Administrative Aspects of Sterilization," Eugenics Record Office, Bull. 10B) give rather completely the summarized legislative aspects of the eugenics movement.

There is no doubt of the continued wide interest in the subject, nor that out of the agitation something of real worth in the population may come, but it is much more likely to be ideals and educational changes than legislative enactments. The fundamental difficulty is and must be that no one knows or can know what is best for the race and population of a nation, and ideals and modes of life differ so widely that too much of the proposed legislation appears as directly restrictive of fundamental rights in life; there may from this develop many potent enemies of the agitation. The movement is distinctly anti-individualistic, its ideal high mental attainment, its prey the submerged tenth, and all the while it forgets and neglects the interests and stability of the great middle portion of the population that does not figure in its special pedigrees. (See also XXVIII, *Medicine.*)

ZOOLOGY[1]

H. E. Jordan

General and Systematic.—Volumes 182 and 183 of the *Publications of the Carnegie Institution* of Washington contain, in addition to a number of papers dealing with related physiological, geological and chemical subjects, important zoological paper on growth rate in *Gorgonians* (Cary), growth changes in Brittle Stars (H. L. Clark), variations in Jamaica *Ech-*

[1] Anatomy and embryology, omitted from the scope of this review, are treated extensively in another department (see XXVIII, *Anatomy*).

ini (Jackson), a systematic study of the *Bryozoa* of the Tortugas Islands, Fla. (Osburn), and a description of the Spotted Eagle Ray (Gudger).

A. H. Clark has published a short note (*Ann. and Mag. Nat. Hist.*, Series VIII, xii) on two interesting mammals from the Island of Tobago, W. I.: a murine opossum, *Marmosa tobagi;* and an armadillo, *Dasypus novemcinctus hoplites.* He describes also a small collection of *Onychophora* from Australia (*Zoöl. Anz.*, xliii, 7). On the basis of the data concerning the geographical and bathymetrical distribution of recent crinoids, he builds interesting conclusions regarding the circulation of the abyssal waters of the oceans (*Bull. l'Inst. Océanographique*, no. 285). In another paper (*Jour. Wash. Acad. Sci.*, iv, 6) Clark makes an illuminating comparison of the relationship between the abyssal and the littoral fauna of the oceans with the relationship between the nocturnal and diurnal fauna of the land.

Esterley has published a systematic study of the *Schizopoda* of the San Diego Region (*U. of Cal. Pub.*, xiii, 1); also a study of their vertical distribution and movements (*ibid.*, 5); and an investigation of the distribution of *Ctenophora* of this area (*ibid.*, 2). Fox (*Proc. Acad. Nat. Sci. Phila.*, June, 1914) has published extensive data on the orthopetran faunistics of eastern Pennsylvania and southern New Jersey. Treadwell (*U. of Cal. Pub.*, xiii, 8, 9) has published a description of the polychaetous annelids, including twelve new species, of the Pacific Coast.

The Norman W. Harris lectures for 1914 at Northwestern University, delivered by Prof. E. G. Conklin of Princeton University, on "Heredity and Environment in the Development of Men," have appeared serially in the *Popular Science Monthly* (June-November). These six papers give an exceptionally clear and concise interpretation of the leading data in a vitally interesting field of zoologic endeavor.

The opening on July 10 of the new building of the Marine Biological Laboratory at Woods Hole, Mass., the gift of Charles R. Crane of Chicago, was an event of great importance to zoology in America. This building is one of the most substantial and completely equipped plants of its kind in the world, and will be kept open for research throughout all seasons of the year.

Experimental Zoology.—By the removal of large portions (more than three-quarters) of the pancreas in the cat, Homans (*Jour. Med. Research*, xxxix, 1) produced fatal diabetes. Microscopic study of the remaining pancreatic tissue revealed a degeneration of the islands (of Langerhans) without alteration of the acinous tissue. His evidence adds further support to the prevailing belief that proper utilization of dextrose is a function of the pancreatic islets, any disturbance in which results in varying grades of diabetes. (See also XXX, *Physiology and Pharmacology.*)

The spleen is commonly believed to be concerned with the destruction of effete red blood corpuscles, the production of new red cells, and with iron metabolism. Meyer (*Jour. Exp. Zoöl.*, xvi, 2) removed the spleen from eight dogs to test the prevailing opinion that such defect is compensated for by the production of haemolymph nodes and accessory spleens; the experimental evidence reported is definitely negative to such possibility. Austin and Pearse (*Jour. Exp. Med.*, xx, 2) also report splenectomy experiments on dogs. Their results lead them to conclude that the spleen does not exert a constant and important influence upon iron metabolism. Experiments on the dog by Krumbhaar and Musser (*ibid.*) tend to show that removal of the spleen may exert a stimulating effect upon the formation of red cells in the bone marrow. Pearse and Pepper (*Jour. Exp. Med., ibid.*, 1) find that extirpation of the spleen in dogs as a rule causes a transformation after six to 20 months of the fatty marrow of the long bones to a richly cellular red marrow, but the fact is not interpreted as a support to the theory that this hyperplasia is compensatory to a resultant anaemia. It is regarded rather as indicating a possible concomitant function of the bone marrow in taking over, in the absence of the spleen, the function of storing and elaborating the iron content of old blood-pig-

ment for future utilization by new red cells.

Laurens (*Jour. Exp. Zoöl.*, xvi, 2) reports interesting results of experiments designed to test the reaction of amphibian larvae to light. Certain frog tadpoles showed no response to the stimulus of light. Salamander larvae react positively both when normal and eyeless. The reaction in the latter results from stimulation of nerves ending in the skin. Normal larvae placed in light become pale, eyeless larvae dark; when placed in the dark, the reverse results follow.

Baitsell (*ibid.*) describes experiments with certain hypotrichous infusoria which he interprets to show that under certain cultural conditions *Pleurotricha lanceolata* will apparently live indefinitely without conjugation or artificial stimulation. Woodruff (*ibid.*) now reports conjugation in a culture of his pedigreed race of *Paramoecium aurelia* which had not conjugated for six years and eight months. This would seem to dispose of Calkins' interpretation and associated hypothesis, namely, that certain races of *Paramoecium* are non-conjugating (*A. Y. B.*, 1913, p. 679).

Lund (*ibid.*, xvi, 1) has made an extensive study of the protozoon *Bursaria*, with reference to its behavior to various kinds of available foods under various experimental environmental conditions. He believes to have demonstrated, among other findings, the striking fact that this one-celled animal can discriminate between, and select, non-toxic grains of yolk from among toxic ones. In a second paper (*ibid.*, xvii, 1) he describes the processes of digestion and resorption within the contractile vacuoles. Lipoids and fats are shown to play an important rôle in growth, while starch is apparently not digested.

Packard (*ibid.*, xvi, 1) subjected the sperm and eggs of the worm *Nereis* to radium rays. Various grades of abnormal fertilization and developmental processes result. Mitosis does not occur, although the protoplasm may divide. In general both protoplasm and chromatin are affected. He suggests that "radium radiation acts indirectly on the chromatin and protoplasm by activating autolytic enzymes which bring about a degeneration of the complex proteids, and probably by affecting other protoplasmic substances in the same manner."

Richards (*Biol. Bull.*, xxvii, 2) has tested the effects of X-rays on the rate of cell division in eggs of the fresh water snail *Planorbis lentus*, and reports a stimulating effect upon mitotic activity coincident with an initial developmental acceleration; this is followed by a phase of depression, the end result being a considerable retardation of development.

Pearl and Surface (*Jour. Biol. Chem.*, xix, 2) have demonstrated that the corpus luteum of mammals (cow) contains a chemical substance which, when injected into the abdomen or a vein, inhibits ovulation also in the fowl. Pearl and Curtis (*Jour. Exp. Zoöl.*, xxii, 3) have shown that neither section, ligation nor complete removal of the oviduct causes the degeneration or prevents the further growth of the ovary.

Tenent (*Publ. Carnegie Inst. Wash.*, no. 182) reports important observations upon two new sea-urchin hybrids (*Cidaris* egg x *Toxopneustes* or *Hipponoë* sperm) experimentally produced, showing the unmistakable influence of foreign sperm upon the character of the development at an earlier stage than has heretofore been recorded.

In a series of experiments in which the internal ear (membranous labyrinth) was removed and transplanted to the opposite side in variously changed positions in the larvae of the frog *Rana pipens*, Streeter (*Jour. Exp. Zoöl.*, xvi, 1) has demonstrated that the developing labyrinth or auditory vesicle possesses the power to correct its displaced and reversed positions. The posture of the vesicle and its canals is conceived to be determined by an influence, the nature of which remains obscure, that interacts between the labyrinth and its environment. The data are thought to introduce a new factor in organogenesis, namely, that of the "individuality of organ development."

Clark (*Jour. Comp. Neur.*, xxiv, 1) induced degeneration in the peripheral medullated nerves of the domestic fowl by a prolonged exclusive feeding with polished rice, causing a polyneuritis. Regeneration of the nerves

thus destroyed, and a return to normal functional condition, followed a return to an adequate nutritive diet. Microscopic study of the sciatic nerve showed that regeneration followed degeneration without passing through the embryonic nerve fiber or "bandfasern" stage, the new axis cylinder growing from the uninjured point down the old degenerating medullary sheath, which may return to normal. When the degenerative process was prolonged, the nuclei of the neurilemma multiplied giving rise to "bandfasern" or so-called embryonic nerve fibers. Clark concludes that the function of these is the removal of the degenerated myelin, a new medullary sheath being supplied probably by the joint influence of the new axis cylinder and the neurilemma cells.

Gudernatsch (*Am. Jour Anat.*, xv, 4) has continued his experiments with frog tadpoles designed to test the effect on growth and differentiation of certain mammalian ductless (endocrine) glands when given as food. He confirms, and strengthens the support to, his earlier conclusions regarding thyroid and thymus; namely, that the thyroid incites to rapid differentiation but inhibits growth, thus producing perfect frogs of diminutive size; the thymus, on the other hand, stimulates rapid growth but retards differentiation. The spleen was found to act like the thymus in suppressing differentiation. These results indicate that growth and differentiation are entirely separate factors in development.

Banta (*Biol. Bull.* xxvi, 3) reports observations on mating behavior among wood frogs which he interprets to suggest that a "chemical sense" is involved in sex recognition.

Mayer (*Publ. Carnegie Inst.*, No. 183) has made an extensive investigation of the effects of temperature upon tropical marine animals. His results suggest that death under high temperature is produced by asphyxiation, due to an insufficiency of oxygen in sea water to sustain the increased metabolic activity of the animal.

Newman (*Jour. Exp. Zoöl.*, xvi, 4) reports reciprocal crosses of various teleosts made with a view to determining the modes of inheritance in heterogenic hybrids. The main criteria employed are the form and color of pigment areas. The first generations exhibit the several well-known modes of inheritance — alternative, blended and particulate.

Morris (*ibid.*) has made a cytological study of the behavior of the chromatin in the early developmental stages of the egg of *Fundulus* fertilized by the sperm of *Ctenolabrus*. The two types of chromosomes can be seen in the cleavage spindle up to the 12-hour stage of development, when abnormalities set in which soon lead to the death of the larvae. She finds no evidence of elimination of the paternal chromatin at any stage.

F. R. Lillie (*ibid.*) has extended his studies on fertilization. His latest paper deals with experiments with sea-urchin (*Arbacia*) sperm. He concludes that fertilization is a reaction between three bodies of which one is borne by the sperm, "sperm receptor," and one by the egg, "egg receptor"; the third body, "fertilizin," which is secreted by the egg and provokes "sperm agglutination," reacting with the other two. The reactions of fertilization are conceived in terms of Ehrlich's "side-chain" theory of immunity. Fertilizin is conceived as possessing two side-chains active in fertilization, the "spermophile" and "ovophile" reacting with the sperm and egg respectively. J. Loeb (*ibid.*, xvii, 1) describes "cluster formation" in sperm of the California sea urchin, *Strongylocentrotus purpuratus*, a phenomenon which he thinks may possibly be identical with the "sperm agglutination" described by Lillie for *Arbacia* and *Nereis*. He offers the tentative hypothesis that the cluster phenomenon is essentially a negative chemotropism of the sperm to the egg-sea water; and he gives results of experiments which he believes prove that the substance which is responsible for the cluster formation is not necessary for the process of fertilization. Glaser (*Biol. Bull.*, xxvi, 6) finds that egg-extracts and egg-secretions of *Arbacia* and *Asterias*, besides producing the sperm-agglutinative phenomenon first noted by Lillie, may also initiate development by increasing the permeability of the surface of the eggs, a condition for which he suggests the term "auto-parthenogenesis."

Risser (*ibid.*) reports interesting

results of experiments designed to elucidate the olfactory reaction of toads, mainly as to whether toads seek and select food by the aid of odors. He finds no evidence that toads react to olfactory stimuli in soil and water; however, they can discriminate between desirable (animal) and undesirable foods on the basis of odor, apparently by reason of appropriate stimulation of an olfactory receptor. Copeland (*Jour. Animal Behaviour*, iii, 3) describes olfactory reactions of the newt indicating that it can scent food under water in the manner of fish.

Hunter (*ibid.*, iv, 3) reports results of experiments devised to test the auditory sensitivity of the white rat, tending to show that discrimination is made between noise and tone, hence sensed as different stimuli. According to Shepherd (*ibid.*, iv, 1) cats are able to discriminate musical pitch and noises of different degrees of intensity.

L. Loeb (*Biol. Bull.*, xxvii, 1) excised the ovaries and the corpus luteum of pregnancy in guinea pigs at various stages of the reproductive cycle, and determined that "for certain phases of the cyclic changes of the uterus the presence, for other phases the absence, of a functionating corpus luteum is necessary; but certain other ovarian structures (probably mature follicles and not the so-called interstitial gland) are required for the latter phases."

Child (*Jour. Exp. Zoöl.*, xvii, 1), continuing his studies on the dynamics of morphogenesis, reports experiments with *Planaria*, devised to determine why some pieces produce a head while others do not; in other words, to determine the factors in head-determination. He concludes that head formation is determined during the first six or eight hours after section, the determining influence beginning to operate probably immediately after section; and that it does not represent the restitution of a missing part, but is the first step in the development of a new individual. "Whether a head shall develop or not depends primarily on whether the cells which give rise to a new tissue at the anterior end of the piece become physiologically isolated to a sufficient degree to develop independently of other parts of the piece, or whether other parts prevent this development. In the former case a head arises, in the latter the piece remains headless. Extending these studies to one-celled animals, Child (*Biol. Bull.*, xxvii, 2) finds an axial gradient in susceptibility to potassium cyanide in certain common ciliate infusoria, similar in nature to that reported in a series of earlier papers for *Planaria*, the results indicating the existence of a gradient in rate of metabolism or of oxidation processes operating as the basis of morphological and physiological polarity of cells and organisms.

Cytology.—Of cardinal interest and value are the observations recorded by Lewis (*Science*, xxxix, 1000) on mitochondria in certain living tissues of chick embryos grown in Lock's solution with dextrose. In these tissue cultures the various types of mitochondria—granules, rods, filaments, loops and networks—could be observed and their various movements and changes closely followed. The simpler types could be seen to associate in the formation of the more complex, and the latter again to resolve into the former. This new method of study promises much toward the better understanding of these enigmatical and much discussed cell elements, and may eventually settle the crucial questions regarding their origin (whether nuclear or cytoplasmic) and fate.

Beckwith (*Jour. Morph.*, xxv, 2) has made a careful microchemical study of the plasma structure of the egg of *Hydractinia*. She reports the *de novo* origin of mitochondria in the cytoplasm, genetically unrelated either to nucleus or yolk spherules. The evidence is believed to indicate also that mitochondria and chromidia are distinct substances, and that "the mitochondria are not a vital part of the protoplasm but are a highly differentiated product." Cowdry (*Am. Jour. Anat.*, xvii, 1) describes mitochondria in the spinal ganglion cells of a number of vertebrates, including man, where they are said to be present in the entire neuron, axon as well as dendron; also in the leucocytes, but not the erythrocytes, of the blood (*Int. Monatschr. Anat. und Phys.*, xxxi, 4),

Hoy (*Biol. Bull.*, xxvii, 1) reports that the number of the chromosomes

in the somatic cells of embryos of the insects *Anasa* and *Diabrotica* is the same as that reported for the germ cells of these forms by Wilson and Stevens respectively. Metz (*Jour. Exp. Zoöl.*, xvii, 1) has begun the much desired study of chromosome groups in *Drosophila*, and reports a preliminary survey of the chromosomes in 12 species. He proposes a tentative evolutionary grouping on the basis of numerical and morphological chromosome differences noted, presumably resulting by process of partition and disappearance respectively of certain chromosomes. There is much evidence to support the belief in the individuality of chromosomes. The species studied present also very striking evidence of the conjugation of maternal and paternal chromosomes in the diploid groups, each pair of chromosomes undergoing synapsis or fusion in every cell division.

Carrel (*Jour. Exp. Med.*, xx, 1) has succeeded in keeping alive *in vitro* a strain of connective tissue, originally derived from a piece of heart tissue of a seven-day chick embryo, for 29 months. He reports an increased proliferative activity relative to its earlier growth.

Reinke (*Carnegie Inst. Pub.*, 183) describes the history of the apyrene sperm of *Strombus bituberculatus;* the data indicating that these sperm may function as nurse cells to the eupyrene sperm, which latter alone participate in fertilization.

In the third of a series of studies on germ cells Hegner (*Anat. Anz.*, xlvi, 3) describes the origin of the germ-cell determinants (*Keimbahn-Determinant*) in a parasitic hymenopteron, *Copidosoma*. The egg is shown to arise by the union end to end of two oöcytes. The chromosomes on the spindle of the posterior or older oöcyte unite and condense to form the "*Keimbahn-chromatin*"; those on the spindle of the anterior oöcyte break down and transform into a resting nucleus. In two preceding studies (*Jour. Morph.*, xxv, 3) Hegner describes the history of this structure in several insects, and includes a very comprehensive historical account of the germ-cell determinant material in insects and higher animals. (See also XXVIII, *Anatomy.*)

Sex Chromosomes and Sex Determination.—Kornhauser (Arch. f. Zellf., xii, 2) has published a detailed comparative study of the chromosomes in the spermatogenesis of two closely related species of the hemipteran genus *Enchenopa*. The chromosome complex of *curvata* includes a typical unpaired accessory chromosome or X-element; this element is lacking in the otherwise quite similar complex of *binotata*. Both contain also a pair of very large, macro- or M-chromosomes. The unreduced or diploid number in both the male and female of *binotata* is given as 20. In *curvata* the male diploid group numbers 19, the female 20. In *binotata* a pair of chromosomes (allosomes) behave during the growth stage and early prophase in a manner characteristic in part of heterochromosomes and in part of autosomes. This is designated as an X-Y pair of sex chromosomes (idiochromosomes). Thus, while the striking dimorphism characteristic of the spermatocytes of *curvata*, due to the presence of an unpaired X-element in half, is lacking in *binotata*, a physiological dissimilarity associated with sex nevertheless obtains in consequence of the differential distribution of the X-Y components of the paired sex chromosome during maturation. Of special interest, and provocative of much speculation and some skepticism respecting any connection between the sex and the X-chromosomes as such, is Kornhauser's observation that occasionally the unpaired X-chromosome of *curvata* may divide at the first maturation mitosis like the ordinary chromosomes. He outlines also an interesting speculation as to the manner in which a pair of idiochromosomes (X-Y group) in one species may change to a condition marked by an odd chromosome or X-element in a closely related (derived) species, based on the assumption that chromatin nucleoli represent Y-chromatin which may be absorbed by the autosomes, leaving the X-element without its Y partner. The X-Y group should accordingly be represented as XY-Y. This assumption further explains the lesser diploid male number in forms with an X-element (19, *curvata*) as compared with a close relative with an X-Y group (20, *binotata*). The matter regarding

sex chromosomes from a cytological point of view appears to stand thus: X-Y groups of certain forms represent transition stages between conditions marked by the presence of an X-element, and one in which no chromosomal dimorphism is discernible, but where two physiological categories of sperm are believed nevertheless to obtain. The evidence would seem to suggest that heterochromosomes (allosomes) are modified ordinary chromosomes (autosomes), that certain chromatin nucleoli are incidental products of the "modification," probably regressive, perhaps progressive, and that the fundamental relationship between chromatin (chromosomes) and sex is a quantitative one, probably influencing metabolic balance and tending to turn the bias of a potentially hermaphrodite (or neutral) organism in the direction of either maleness or femaleness.

Several other papers incline in the same direction. Carothers (*Jour. Morph.*, xxiv, 4) reports chromatic vesicles (two single, one double) in certain orthoptera (chiefly *Brachystola magna*) at the same stages where heterochromosomes are generally conspicuous, apparently serving as chromatin reservoirs for the changing chromosomes and attached to the spireme (threads) or prophase chromosomes through a peripheral dense granule. In *Arphia* part of the chromatin which gives rise to a certain large tetrad passes through the diffuse phases of the growth and later resting stages as one of the three dense chromatin nucleoli changing in chromaticity, in general reciprocally, with the changing stainability of the chromosomes. She further describes the behavior of this large chromosome (tetrad) in relation to the accessory chromosome. She shows that the division products (dyads) follow the law of chance, a fact which she believes furnishes "direct cytological support of Mendel's laws." She regards the evidence as another link added to the "already long chain of evidence that chromosomes are distinct morphological individuals continuous from generation to generation, and, as such, are the bearers of hereditary qualities." She concludes on the basis of cytological observations that probably "all inheritance is, in reality, Mendelian."

Possibly the chromatin (chromosome) nucleoli reported by Jordan (*Pub. Carnegie Inst. Wash.*, no. 182) in the spermatocyte growth stages of certain vertebrates, and interpreted as heterochromosomes, must be similarly interpreted as "chromatic vesicles." However, if these contributed chromatin to certain particular chromosomes, as in *Arphia*, or were carried in connection with a certain chromosome to one pole in the first maturation division, two categories of sperm, from the standpoint of chromatin content, would be formed just as when an actual heterochromosome is present, and on the basis of a quantitative interpretation of sex determination produce the same result. Moreover, the possible genetic relationship suggested by certain recent work between chromatin nucleoli, allosomes, and ordinary chromosomes, reconciles somewhat the conflicting hypotheses touching the mechanism of sex control. As regards the horse, Nodsedalek (*Biol. Bull.*, xxvii, 6) has now demonstrated that the body in question is a typical accessory chromosome.

Jordan (*Science*, xxxix, 1003) reports observations suggesting a sex-chromosome also in *Chrysemys marginata;* a similar element appears to be lacking in another turtle studied, *Cistudo carolina.* The reported diploid numbers of chromosomes, 17 and 16 respectively, suggest that from a genetic standpoint the even numbers in *Cistudo* signify loss (or fusion with autosome) of an X-element, a reverse assumption to that made above to account for the difference in chromosome numbers between two closely related insects where the Y-element was supposed to have been eliminated.

In 1909 Guyer (*Anat. Anz.*, xxxiv, 573) reported an X-chromosome in the male of the Black Langshan, on the basis of which the male was regarded as heterozygous for sex or digametic. Breeding experiments with birds and certain higher vertebrates, however, have given apparently clear evidence that the male is homozygous and the female the heterozygote for sex. Boring and Pearl (*Jour. Exp. Zoöl*, xvi, 1) have reinvestigated the cytological data. They confirm Guyer's

observations in so far as relates to the presence of an element which he interprets as an X-chromosome, but conclude that "there is at present no valid evidence that any element which may justly be interpreted as an X-chromosome exists in the chicken." But the conflict involved can not be said to be composed by this study, for the question still largely remains one of interpretation of a chromosome in certain cells (perhaps the only normal cells) behaving in a manner suggesting an accessory chromosome. On a quantitative basis, however, or viewing the presumed accessory in birds and certain vertebrates as an inhibitor to male sex in the developing female, much of the conflicting evidence respecting sex would seem to be harmonized.

The experiments of Steinach (*Zentralblat. f. Phy.*, xxvii, 14) of reciprocal transplantations of testes and ovaries in young male and female rats and guinea pigs by which process he changed a potential female, from the viewpoint of secondary sex characters, into a male, and *vice versa*, would seem to prove that these forms at least, probably vertebrates generally, carry the potentialities of both sexes. Steinach interprets his results to mean that not only do the secondary sex characters of the male and female depend upon the presence of the "pupertal gland" (interstitial cells of testes and ovaries respectively), but also the fact whether the undifferentiated gonad of asexual or indifferent individuals (not primary hermaphrodites) shall develop into a testis or ovary. Biparental inheritance furnishes the bases for both male and female fundamental and secondary sexual characters. There seems to be no really crucial countervailing evidence to the hypothesis that the "sex chromosome" functions as a "sex determinant" by reason of its determining through differential distribution in two categories of sex cells (male or female respectively) relatively greater and less amounts of chromatin, the latter acting as a deterrent to the greater differentiation characteristic of the male. As Castle suggested a number of years ago, both males and females may be heterozygotes in a Mendelian sense; but the potency or suppression of one or the other set of sex phenomena may be controlled by a quantitative relationship of chromatin, inherent in sex-chromosomes. This would seem to bring us back again to the earlier position of Geddes and Thomson, namely, that maleness results from a condition of relatively preponderant katabolism, femaleness from a condition of preponderant anabolism. Sex may then be thought of as an incident of metabolism; an anabolic condition (characterized by relatively much chromatin) inhibiting differentiation into a male; a katabolic condition carrying differentiation to maleness with its accessory secondary characteristics.

The two sets of secondary sexual characters (male and female) would according to this interpretation simply represent different degrees of differentiation of the same anlagen. Both fundamental sexual conditions as well as both secondary groups are apparently potentially present in all sexually dimorphic organisms. Metabolic conditions, dependent upon the relative nucleo-cytoplasmic relationship, determine the degree of differentiation and thus the complex of phenomena which constitutes one or the other sex.

Riddle's recent experiments with pigeons (*Science*, xxxix, 1003) supply evidence in general pointing to the same conclusion. Whitman had already reported the possibility of sex control in pigeons, and showed that the first young of the season were nearly all males, the later females. Riddle has continued and extended the work with Whitman's material. He concludes that all the evidence "strongly indicates that the basis of sex is a fluid reversible process; that the basis of adult sexual difference is a *quantitative* rather than a *qualitative* thing." This accords in general with the earlier results of Hertwig's experiments with frog eggs, where when fertilization was delayed for some time only males were produced; likewise with the observations of Pearl and Parshley (*Biol. Bull.*, xiv, 4) on cows, where, when coitus occurred late in the period of heat, males preponderated. Pearl and Salaman (*Am. Anthropologist*, xv, 4), however, could find no evidence in a very satisfactory group

of statistics relating to births among orthodox London Jews, confirming this view of sex-control in man. The more correct notion would seem to be to regard maleness as the result of an addition of something (presumably an additional degree of differentiation) to femaleness, rather than that femaleness is maleness plus, an interpretation at first thought to be suggested by cytological facts. This is in conformity also with the observations of Geoffrey Smith (*Eugenics Rev.*, vi, 1) on the male spider-crab, *Inachus*, which may be castrated by an infecting parasite, *Sacculina*, and then takes on female secondary sex characters, after which, in cases of recovery, the crab may regenerate an internal reproductive organ, which is now, however, an ovary with eggs which may become full grown. The fact that the fundamental appear after the secondary sex characters, the opposite of the usual mode in animals, indicates that the two are independent of each other but both dependent upon the same fundamental metabolic condition, perhaps determined in a quantitative sense by the presence or absence of sex-chromosomes. In the development of the frog similar evidence appears: the immature frog is said to carry gonads in the hermaphrodite condition, closely resembling an ovary; the male gonad arises from this by a process of further greater differentiation. Much evidence thus points to the conclusion that male and female sex are in essence different degrees of differentiation of the same fundamental anlagen.

In an extensive monograph on the biologic foundations of the secondary sex characters Landler and Gross (Berlin, Springer, 1913) detail evidence tending to show that these characters are fundamentally species (systematic) characters, and that their differential development in male and female respectively depends upon reactions of various organs to a hormone in the internal secretion of the sex-glands, modified in various ways and degrees by the combined influence of hormones of other endocrine glands.

It does not appear at present how this quantitative view of sex-determination can be precisely related to the facts of sex-linked inheritance as worked out in greatest detail for *Drosophila* (Morgan), but there would seem to be nothing among the present data definitely dispelling hopes of an ultimate correlation. Morgan, who previously inclined strongly to a quantitative interpretation, concludes on the basis of his experiments with fruit flies that "the facts . . . considered furnish . . . demonstrative evidence in favor of the view that sex is determined by an internal mechanism (which) . . . appears . . . to be the same mechanism that regulates the distribution of certain characters that follow Mendel's law of inheritance" (*Heredity and Sex*, 1913, p. 72).

Zeleny and Faust (*Science*, xxxix, 1003) have made measurements of the heads of spermatozoa of 12 species of animals, including various insects, a turtle and *Bos*. Variation curves were plotted from these measurements. These are distinctly bimodal and indicate two size groups. They infer that the group of larger spermatozoa is the one with an X chromosome and that the other group lacks the element. (See also *Organic Evolution, supra.*)

BOTANY

B. M. Duggar

Journals.—Within the past two or three years there have been established no less than six new journals in the field of botany. Three of these journals publish only scientific contributions while the other three are of more general and popular tenor. The new journals are as follows:

American Journal of Botany (Botanical Society of America and Brooklyn Botanical Garden).

Annals of the Missouri Botanical Garden (Missouri Botanical Garden).

Physiological Researches (Editorial Office, Laboratory of Plant Physiology, John Hopkins University).

Pomona College Journal of Economic Botany (Pomona College, California).

Brooklyn Botanical Garden Record.

Missouri Botanical Garden Bulletin.

Some conception of the present position of botanical work in America may be formed from the fact that

there are now altogether about 25 magazines and smaller serials devoted exclusively to botanical articles and plant notes; while, in addition, a considerable amount of material of similar interest appears in the transactions and memoirs of the various academies, in journals covering a wider range of science, in the bulletins and reports of the various agricultural experiment stations or government laboratories, and likewise to a certain extent in the better class of trade journals.

Meetings.—Two meetings of national importance have occurred during the year. The Botanical Society of America and the American Phytopathological Society met in Atlanta, Dec. 30, 1913, to Jan. 2, 1914, in affiliation with the American Association for the Advancement of Science. The crowded programme of the latter is indicative of the highest activity in plant-disease investigations. The sessions of the Botanical Society included, in addition to the usual reports on research work, an important symposium on "Temperature and Plant Life" and an address by the retiring president, Dr. L. R. Jones, on "Progress and Problems in Plant Pathology." The twenty-fifth anniversary of the establishment of the Missouri Botanical Garden was celebrated Oct. 15-16, and the programme included 15 invitation papers on all phases of botanical work. The occasion took the form of a special botanical congress. Three foreign botanists (Prof. N. Wille, Norway; Dr. Otto Appel, Berlin; and Dr. Johanna Westerdijk, Holland) took part in the programme.

Taxonomy.—Considerable activity has been manifest in the taxonomic aspects of botanical science during 1914. Instead of presenting a complete list of published articles, it has seemed well at this time to direct attention to some of the chief lines of activity in taxonomic study as indicated by the work in progress at many of the larger herbaria. In California Setchell and his students have made much progress with the study of the marine algae, especially the Florideae of that coast. Gardner has been accumulating species of the Tuberaceae, or truffles, interesting subterranean fungi. Jepson has studied critically the Polygonaceae, Chenopodiaceae, Nytaginaceae, Portulacaceae, and Caryophyllaceae; the discussions of these families are appearing in his *Illustrated Flora of California*. In the same region Hall is studying the Madieae of the Compositae, utilizing also cultural studies in his work. A *Flora of New Mexico* prepared jointly by Standley of the U. S. National Herbarium and Wooten of the U. S. Department of Agriculture is in press. This will form an important link in the chain of floras of the West and Southwest.

At Chicago (Field Museum of Natural History) special attention has been devoted to the collection of material from Mexico and the Antilles, also from northwestern North America and the Philippines. At the same time the extensive herbarium at the University of Chicago has been incorporated into that of the museum. Millspaugh has continued his studies of North American Euphorbiaceae, during which he has completed and published in the "Botanical Series" of the Field Museum his consideration of *Pedilanthus* and *Cubanthus;* also that of the Adenopterae; and has added descriptions of a number of new *Chamaesyces* to the known species of Euphorbieae. He has also reorganized the large collection of *Euphorbia* species, in preparation for work on the Euphorbieae for the *North American Flora*. Sherff has continued his differentiating work toward a monograph of the genus *Bidens*.

The Missouri Botanical Garden, St. Louis, has undertaken a field survey of a portion of the southwestern flora. During the year field agents have been actively collecting the necessary material. Greenman has published in the *Annals of the Missouri Botanical Garden* descriptions and notes on North American Senecioneae preliminary to the preparation of a monograph of the North American species of the genus *Senecio*. Burt has published two parts of his monograph of the Thelephoraceae of North America, including thus far, besides the general introductory account, a discussion of he genera *Thelephora* and *Craterellus*.

The staff of the National Herbarium at Washington have been occupied with a variety of problems. Coville

has continued his work upon the genus *Vaccinium;* under the auspices of the Carnegie Institution Rose (with Britton) has extended his investigations of the Cactaceae, spending several months in western South America collecting material; Maxon has continued his studies of tropical American ferns; Standley has been occupied with a study of the plants of Panama, preparatory to the utilization of this material in the Flora of that region, to be published by Pittier.

At the New York Botanical Garden progress has been made in the preparation of additional parts of the *North American Flora*, including a number of families. Britton has continued investigations on the West Indian flora, with special reference to Bermuda and Porto Rico; Small has extended his studies on the flora of the southeastern United States; and Howe has completed and published in the *Memoirs of the Torrey Botanical Club* an enumeration of an important collection of Peruvian algae. Much attention has been given to the study of the flora within 100 miles of the city of New York, and an annotated catalogue of this flora, prepared by Normal Taylor, is nearly ready for publication. Field work in Porto Rico and adjacent islands and in Bermuda has been continued. Investigations of the Cactaceae by Britton, in coöperation with Rose and the Carnegie Institution of Washington, are progressing.

The recent taxonomic work in the Arnold Arboretum herbarium by Sargent includes a study of the genus *Pinus*, recently published in Shaw's monograph of that genus; the study of *Carya, Aesculus, Prunus, Robinia, Quercus* and *Tilia*, as represented in the *North American Flora;* and the study of the collection of plants made by Wilson in China and published in *Plantae Wilsonianae.* In March the elaboration of the following families as they appear in Wilson's collection made in the Arboretum was published: Ginkgoaceae, Taxaceae, Pinaceae, Zygophyllaceae, Rutaceae, Simarubaceae, Burseraceae, Meliaceae, Polygalaceae, Buxaceae, Coriariaceae, Anacardiaceae, Staphyleaceae, and Icacinaceae. This work on the Chinese flora is being continued and will be completed in the course of another year.

Based on materials studied at the Gray Herbarium, Fernald and Wiegand have revised the maritime genus *Ruppia* and have presented a preliminary synopsis of the American forms.

During the year insular, American, and foreign botanists have made considerable progress in the way of contributions to the Philippine flora. Ames has devoted special attention to the orchids of these islands, as well as to those of the West Indies and elsewhere. European specialists are being occupied with certain aspects of this flora. Many of the flowering plants, however, are receiving attention from Elmer, editor of the "Leaflets of Philippine Botany." An extensive account of the larger woody Hawaiian plants is given in Rock's *Indigenous Trees of the Hawaiian Islands.* Smith has continued his publications of undescribed plants from Guatemala and other Central American republics.

Physiology.—In the investigation of physiological phenomena the water relation, in the broader use of that term, and the effects of injurious agents or conditions upon the cell or organism have received during the year greater consideration perhaps than all other topics combined. Among the many new facts and opinions of interest some few in these and related aspects of the subject only may be noted. Briggs and Shantz (*Jour. Agr. Res.*, iii, 1-63) find great differences in the water requirements of agricultural and indigenous plants. Beginning with those having a low requirement, such as millet, sugar beet, and cowpea (representing different series), and calling these unity, the requirements of other plants in the series may run three times as great. This work will undoubtedly develop important practical applications. Dachnowski and Gormley (*Am. Jour. Bot.*, i, 174-185) distinguish between the transpirational value, or ecological water requirement, and the water retained in the plant, or physiological water requirement. Some important relations of salt content, and of other conditions affecting the retention of water, to growth are brought out. Duggar and Cooley (*Ann. Mo. Bot. Gard.* i, 1-22, 351-356) have presented data showing the pronounced effect of Bordeaux mix-

ture in facilitating transpiration in certain plants which exhibit increased length of life as a result of the action of this fungicide. Hasselbring (*Bot. Gaz.*, lvii, 72-73, 257-286) finds that the quantity of the transpiration stream is not related to the salt content in the tobacco plant, also that the transpiration of tobacco plants grown under the cheese-cloth tent in Cuba is, per unit area of leaf surface, only about half as great as that of those grown in the open. Giddings (*Pl. World*, xvii, 309-328), while detecting a close relationship between transpiration and evaporation, is convinced that in the former other factors than those important in evaporation are concerned; in short, that the organism exerts some regulatory influence. Shive and Livingston (*ibid.*, 81-121) have reinvestigated the wilting coefficient of plants under varying atmospheric intensities, and would modify somewhat the earlier conclusions of Briggs and Shantz; they have attempted to express mathematically the relation between the wilting coefficient and evaporating power.

Shreve (*ibid.*, 9-26) has determined the importance of rainfall in the determination of soil mixture, indicating especially that slight precipitation has no effect upon the effective moisture of the soil, and he includes full data on the range of moisture conditions in the regions of Tucson. Fuller (*Bot. Gaz.*, lviii, 193-234) has made determinations of evaporation and soil moisture in the Chicago region where the succession of associations is clearly marked. Many data are presented showing the relations in different associations. Most important, perhaps, is the fact that the rate of evaporation and the amount of growth water in the different associations are directly related to the occurrence of these associations in the succession, xerophytism characterizing the pioneer. Weaver and also Rumbold (*Pl. World*, xvii, 273-294, 213-215) furnish quantitative data on evaporation rates. It should also be noted that many further studies have been made of drought resistance in plants, especially by the U. S. Department of Agriculture.

The resistance of certain seeds to submergence during a period of years is emphasized by Shull (*ibid.*, 329-337), who also (*Bot. Gaz.*, lvii, 64-69) shows that the seed coats of *Xanthium* are partly responsible for the observed rest in these seeds, and maintains that the nature of the inhibition caused by the absence of oxygen is as yet unsolved.

Crocker and Davis (*ibid.*, lviii, 285-321) find that dormancy in *Alisina Plantago* is governed by mechanical restraint of the seed coat, and they make some slight advance in attempting a physical-chemical explanation of the osmotic and inhibitional swelling.

The importance of considering the organic materials present in any nutrient medium for the fungi in which the action of a deleterious agent is determined has been emphasized by Kunkel (*Bull. Torrey Bot. Cl.*, xli, 265-293). The effects of some metals in colloidal state on *Spirogyra* have been studied by Hoyt (*Bot. Gaz.*, lvii, 193-212), and some antagonistic relations of the colloidal solutions are of interest. From a study of the antagonistic action of anions with respect to the nitrifying power of soils, Lipman (*Pl. World*, xvii, 295-305), although not considering important earlier work, points out marked antagonisms between the different soluble salts of sodium, and contributes also additional data respecting the antagonism in toxic solutions. Osterhout (*Bot. Gaz.*, lviii, 178-186, 272-276, 367-371) likewise adds some details regarding the explanation of antagonistic phenomena, while True (*Am. Jour. Bot.*, i, 255-273) explains the toxic action of distilled water of highest resistance through its extraction of electrolytes from the plant.

For plant physiologists an excellent summary of the influence of temperature on chemical reactions is furnished by Barry (*ibid.*, 203-225). Other aspects of the effects of temperature are brought out by Shreve (*ibid.*, 194-202) and MacDougal (*ibid.*, 186-193).

The indefiniteness which has existed regarding the fungi taking part in mycorhiza of forest trees has been considerably clarified by McDougall (*ibid.*, 51-74), who determines several additional species of fleshy fungi important in the formation of mycorhiza, ascertains that several species of fungi may form mycorhiza on the same

tree, and adds other data bearing upon seasonal changes and relations of mycorhiza. Darsie, Elliott, and Peirce (*Bot. Gaz.*, lviii, 101-136) find that the germinating power of seeds of different ages may be ascertained by the temperatures developed in silvered Dewar flasks, showing that each plant appears to have a "normal" temperature capacity, so that a determination thereof furnishes a key to quality.

Morphology.—Renewed activity on a morphological basis characterizes the study of angiosperm phylogeny. An investigation of the ovule and female gametophyte, especially, of *Araucaria brasiliensis* exhibits, according to Burlingame (*ibid.*, 490-508), structures neither highly specialized nor particularly primitive. For one thing, primitiveness is suggested by the large gametophyte, but the relatively late persistence of free cells, the failure to find a ventral canal cell, and the specialized archegonial necks suggest a relation to Taxaceae or Taxodineae.

The studies of Bailey and Sinnott (*ibid.*, 36-60) crystallize the anatomical objections to the "aggregate"-ray hypothesis, whereby the Amentiferae are considered as a group of the most primitive angiosperms. They find in the Fagales, for example, a series of stages showing the origin of the "aggregate" ray by a progressive reduction of wide multiseriate rays. This in connection with such characters as syncarpy, epigyny, and certain vestiges of bisexual flowers point to the Amentiferae as specialized families originating from more complicated forms. Following up the suggestion from *Equisetum* and a few other plants that in the leaf node conservatism or primitiveness in vascular tissue is characteristic, Sinnott (*Am. Jour. Bot.*, i, 303-322) has investigated this structure in about 400 angiosperms, and he finds the anatomy simple and relatively constant in the different families, therefore serviceable in classification and phylogeny.

Anatomical study of the embryo of *Crystanthus sanguineus* has convinced Farrell (*Bot. Gaz.*, lvii, 428-436) that the sheath of this monocotyledon is probably derived by fusion, and she finds it entirely comparable to the case of *Microcycas*, postulating that the fusion noted is the last link required in the chain of proof indicating the origin of monocotyledony from dicotyledony. Coulter and Land, accepting the general evidence pointing to the origin of monocotyledons from Archichlamydeae, and pursuing the suggestion of Farrell, have sought transitional material for a further study of the origin of the cotyledons. In *Agapanthus* (Liliaceae) and other forms an explanation was found through evidence indicating that cotyledons are always lateral structures and not merely lateral in dicotyledons, as formerly held; but in all cases they develop from a peripheral zone of the proembryo. Number of leaves is secondary, and constancy here is on the same plane as constancy in number of petals arising from the petaliferous zone. The chief point is that the cotyledonary whorl is invariably the same structure.

Elkins (*ibid.*, 32-52) finds that the maturation phases in smilax follow essentially Gregoire's "*hétéro-homéotypique*" scheme. In the Convallariaceae McAllister (*ibid.*, lviii, 137-153) reports considerable variability with respect to the origin of the embryo sac; one, two, or four of the reduction (megasporic) nuclei may enter into the structure. Cell plates in the megasporic divisions may be temporary or persistent.

Discussing from a general standpoint the phenomenon of reproduction in plants, Coulter (*ibid.*, 337-352) has not been able to distinguish satisfactorily between the essential or primary characteristics of gametes and those characteristics which are apparently unessential or secondary. He would, however, infer that these cells possess some mutual attractive substances arising through declining metabolism; but still more important is the endowment of the nuclei of these gametes such that when they fuse a new individual is formed, so that after all, sexuality and the power to produce new individuals ordinarily reside in the peculiar properties of the nuclei and are normally determined by the reduction division. Jeffrey (*ibid.*, 322-336) has collected data which lead him to emphasize the opinion that partial or complete sterility is an indication of genetic contamination; and he would point to the fre-

quency of contamination in such families as the Onagraceae and Rosaceae with the warning that species such as *Oenothera Lamarckiana*, which is under strong suspicion as being of hybrid nature (see *Organic Evolution*, *supra*), may shed light on the multiplication of species but not upon their origin.

In a cytological study of the pyrenoid of *Anthoceros leavis* McAllister (*Am. Jour. Bot.*, i, 79-95) finds that this structure is made up of many closely aggregated bodies which give a reaction for protein. When photosynthetically active the outer bodies are converted directly into starch masses and therefore some support is given to Schimper's view of the formation of starch as a transformation product of protoplasm.

The development of the sporophore in Agaricaceae has received considerable attention recently. Atkinson (*Am. Jour. Bot.*, i, 3-22; *Ann. Myc.*, xii, 346-356, 369-392; *Myc. Centrbl.*, iv, 113-120), Levine (*Am. Jour. Bot.*, i, 343-356), and Zeller (*Mycologia*, vi, 139-145, 235-239) have added data regarding eight species and it would now seem that there are at least three well-distinguished types of angiocarpous sporophoric development. The phenomena in *Agaricus*, *Stropharia*, and *Armillaria* are essentially the same. The development of *Amanitopsis vaginata*, and *Coprinus micaceus* is somewhat more complex. The simplest type is that represented by *Hypholoma* and *Clitocybe*. In the cases thus far studied it continues to hold true that in the annulate forms the primordium of the hymenium appears first, while the evidence is that in *Clitocybe* and *Hypholoma* the pileus is first distinguished. Thaxter (*Bot. Gaz.*, lviii, 353-366) has described three interesting new genera of Mucoraceae and (*ibid.*, 235-253) four new genera of imperfect entomogenous fungi, the latter resembling the Laboulbeniaceae in one point, namely, in the possession of an organ of attachment, differentiated as a foot, serving also for the absorption of food materials.

The conditions of reproduction in *Glomerella* have been studied by Edgerton (*Am. Jour. Bot.*, i, 244-254), who finds in this genus a state of affairs somewhat resembling that found in the heterothallic Mucoraceae. In the latter, however, both plus and minus strains are necessary in order that zygospores may be produced, while in *Glomerella* the presence of both strains merely stimulates the fertilization phenomenon. Higgins (*ibid.*, 145-173) distinguished three species of *Cylindrosporium* parasitic on *Prunus*, each possessing also a spermatial and an ascogenous form. The ascogenous stages prove to be species of *Coccomyces* which develop from the stroma on fallen, wintered leaves. Harper (*ibid.*, 127-144) describes cleavage phenomena in *Didymium*, showing that the process begins at both the outer and inner surface of the spore plasm, and the furrows progress irregularly, cutting off at first multinucleated areas, but finally each two-nucleated block is cut into one-nucleated spores which are the definitive spores of the fungus. Little evidence remains that simultaneous division by cell plate formation occurs extensively in the fungi. Bisby (*ibid.*, 274-288) finds that in *Physarella* and *Stemonitis* the development of the capillitium is by progressive deposition of materials, and the cleavage furrows follow quite extensively the lines of the capillitium threads.

PALEONTOLOGY

CHARLES R. EASTMAN[1]

Invertebrates. — The most notable contribution in invertebrate paleontology during the year is the *Monograph of Mississippian Brachiopoda* by Stuart Weller (Monogr. 1, Geol. Surv. Illinois, 2 vols.). This comprises detailed studies and descriptions of the brachiopod shells of the Mississippi Valley area, together with a discussion of the geological formations involved. The internal shell structures, very important in classification but little

[1] For assistance in the preparation of this article the writer is indebted to Dr. R. S. Bassler, of the U. S. National Museum, Drs. W. D. Matthew and W. K. Gregory, of the American Museum of Natural History, and to Dr. W. J. Holland, director of the Carnegie Museum.

known hitherto, have been determined by means of successive cross-sections.

In his important paper on "Precambrian Algonkian Algal Flora" (*Smithson. Misc. Coll.*, lxiv, no. 2), Dr. Walcott describes genera and species of calcareous algae and discusses their importance as rock builders. He also considers the question of the probable continental (lake) origin of many limestones, particularly those of the Algonkian, and the extent to which algae enter into their composition.

In another paper by the same author, on *Dikelocephalus* and related genera, a number of these Cambrian trilobites, mainly from the Mississippi Valley, are described, and faunal lists are given for the pre-Ordovician rocks of this region.

August F. Foerste continues his studies of the early fossiliferous rocks of Kentucky, the results of which are contained in two papers, one of which is published by the Cincinnati Society of Natural History, and the other, on *Agelacrinidae*, by Denison University (*Bull. Sci. Lab.*, no. 16).

Among the papers of the year dealing with the Mesozoic are to be noted one by James Perrin Smith, entitled "The Middle Triassic Marine Fauna of North America" (U. S. Geol. Surv., Prof. Paper 83), which treats extensively of cephalopods. L. W. Stephenson contributes an important article on "Cretaceous Deposits of the Eastern Gulf Region" in the same series of government publications. Two papers on the Mesozoic flora have been contributed by E. W. Berry, one on Jurassic plant life of Alaska, the other on the Cretaceous and Eocene flora of South Carolina and Georgia.

Vertebrates.—A welcome and valuable addition to the literature of extinct mammalia is W. B. Scott's comprehensive treatise *History of the Mammals of the Western Hemisphere* (Macmillan Co.). It is well illustrated and written in an engaging semi-popular style. Embracing as it does a large part of the author's own extensive researches upon North and South American fossil mammals, no other guarantee is needed for its high authority. Another useful and well illustrated text-book of extant mammals is O. Abel's *Die vorzeitlichen Säugetiere* (Jena, 1914).

A memoir by W. J. Holland and O. A. Peterson on the *Chalicotheroidea*, published by the Carnegie Museum, gives a full account of the osteology of *Moropus*, a gigantic "clawed ungulate," one of the most remarkable of extinct mammals. Until a few years ago this animal was known only from a few fragments, but the discovery of finely preserved remains including a nearly complete skeleton has enabled the authors to describe it fully and compare it with its Old-World relatives, and to reconstruct the skeleton so as to restore the animal as in life.

C. W. Andrews describes an interesting little collection from the Miocene of Central Africa, the first direct light we have had on the Tertiary fauna of Ethiopia proper. It indicates an admixture of earlier and later invaders from the north, with some remenants probably of autochthonic fauna.

Researches by W. D. Matthew upon the earliest Tertiary faunas of North America are clearing up many problems concerning the origin and early history of the mammals.

The highly varied extinct mammalian faunae of Patagonia, which have been described in a long series of memoirs by Owen, Ameghino, Scott, Gaudry, Sinclair and others, are also the subject of Prof. F. B. Loomis's recent work on the Deseado Formation (1914). After an interesting discussion of the habits of the strange hoofed mammals, he describes many new forms. He concludes that *Pyrotherium*, a large mammal of disputed affinities, is after all related to the Proboscidea, and he is inclined to derive the whole Patagonian ungulate fauna from supposed African stock which had much in common with hyracoids.

The evolution of the titanotheres (extinct hoofed mammals of the North American Oligocene) has been summarized by Prof. H. F. Osborn (*Bull. Geol. Soc.*, 1914), who distinguishes in these and other races two kinds of evolutionary changes called respectively (1) *rectigradations*, or qualitatively new characters, and (2) *allometrons*, or changes of proportion.

Reptilia. — A companion work to Scott's text-book, mentioned above, is S. W. Williston's fine volume on *Wa-*

ter Reptiles, Living and Extinct. It contains an excellent summary of the recent progress that has been made in discovery and researches among the ancient and primitive reptiles of the Permian, especially in Texas and New Mexico. Almost equally important additions to the wonderful Karroo fauna of South Africa have been made by Broom and Watson. As a result of these recent discoveries we are gradually feeling our way towards a real understanding of the origin and early history of the various kinds of reptiles, of mammals, and of birds.

The reptiles and amphibians of the Upper Carboniferous and Permian periods of Texas, New Mexico and South Africa constitute highly diversified extensive faunas, which are being actively studied by Williston, Case, Broom, von Huene, Watson and others. The collective researches of these investigators are gradually revealing the evolutionary interrelationships of mammals and birds with reptiles, of reptiles with amphibians, and to a certain extent of amphibians with fishes. In some of the earliest amphibians of the English Coal Measures (*Loxomma, Pteroplax*), the architecture of the skull is of a remarkably primitive type, on the one hand retaining many structural characteristics of Rhizodont fishes, and on the other hand foreshadowing typical amphibia and the more primitive reptiles. In certain of the latter (e. g. *Seymouria*) the skull is in many respects like that of the contemporary amphibia. Others of these ancient vertebrates foreshadow the lizards, rhynchocephalians and dinosaurs, and still others tend to connect the specialized Pelycosaurs and Cotylosaurs with more primitive types. The mammal-like group (*Anomodontia, Cynodontia*, etc.) of South Africa and Russia, is steadily yielding evidence for the view that the mammals themselves have sprung from some of its members, which probably had a wide distribution in Permian times.

Explorations in the Cretaceous formations of Central Alberta, by the museums of Ottawa and New York, continue to reveal new and remarkable dinosaurs. The variety and extraordinary character of these gigantic reptiles is surprising and the specimens are marvelously complete and perfectly preserved.

The Carnegie Museum at Pittsburgh has been actively engaged during the year in the further development of the great deposit of fossil reptiles discovered some years ago by Earl Douglass in Uinta County, Utah. In the process of excavation there have been discovered the remains of a number of sauropod dinosaurs, remarkably well preserved, and a skeleton of *Allosaurus*, or of a carnivorous dinosaur closely allied to that genus. One of these skeletons, recovered in previous years at the same locality, representing probably the most perfect specimen of a sauropod dinosaur yet recovered, is in process of being mounted for exhibition. A new rhynchocephalian from the Jura of Solennofen has likewise been described in the *Annals* by Norman M. Grier. The same institution has also published three memoirs and one shorter article, by C. R. Eastman, on the fossil fishes contained in its collection.

The Berlin Museum has issued a report upon the magnificent collection of Jurassic dinosaurs obtained at Tendagurn in German East Africa. The largest of these, represented by a nearly complete skeleton, compares in size with a huge dinosaur found some years ago in Colorado, and is referred to the same genus, *Brachiosaurus*. The most remarkable feature is the great length of the fore-limbs and neck, somewhat as in the giraffe. Although hardly as long as the well known *Diplodocus* and *Brontosaurus*, it surpasses these animals in bulk and was undoubtedly the largest of all known quadrupeds. Other partial or complete skeletons of smaller dinosaurs in considerable variety are reported, and preliminary descriptions given of one or two. Triassic dinosaurs bid fair to become much better known by the discovery of numerous well-preserved skeletons found at Halberstadt, and from near Stuttgart, in Germany. The new finds are peculiarly welcome because these older dinosaurs have been known hitherto from very scanty and fragmentary materials. In North America especially the record is defective, although Jurassic formations are widespread, both in the East and West.

XXVI. ANTHROPOLOGY, ETHNOLOGY, SOCIOLOGY AND ECONOMICS

ANTHROPOLOGY AND ETHNOLOGY

GEORGE GRANT MACCURDY

Fossil Man in England.—In the last issue of the YEAR BOOK (p. 691) considerable space was devoted to the epoch-making discovery of the man of Piltdown in Sussex, England, named by Dr. Woodward *Eoanthropus dawsoni*. Since the publication of the last report, additional data have been gathered, in part through laboratory studies on the relics previously found and in part through the finding of additional specimens. The nasal bones have been found and are said to "resemble those of existing Melanesian and African races, rather than those of the Eurasian type."

The right canine tooth found in 1913 is larger than any human canine hitherto encountered. It not only interlocked with the opposing canine, but rose above the level of the other teeth and was separated from the lower premolar by a diastema. On the other hand there is no facet due to wear against the outer upper incisor, such as often occurs in the apes. If a comparative anatomist were fitting out *Eoanthropus* with a set of canines, he could ask for nothing more suitable than the tooth in question. It conforms to a law in mammalian paleontology that "the permanent teeth of an ancestral race agree more closely in pattern with the milk-teeth than with the permanent teeth of its modified descendants."

The various elements that make up the gravel bed at Piltdown are better known to-day than they were a year ago. At the top is a deposit of surface soil. The second bed consists of undisturbed gravel. A rude paleolith of the Chellean type was found in the middle of this layer. The third layer is easily distinguished because of its dark ferruginous appearance. All the fossils (the deer excepted) were either discovered in or have been traced to the third layer. So-called eoliths, at least one worked flint, and *Eoanthropus* were likewise found at this level. Judged from its fossil content the third stratum would be classed as Pliocene were it not for the presence of *Eoanthropus* and the beaver. In view of the fact that the remains of these, although softer, are not so rolled and worn as are the other fossil remains, the third bed, although composed in the main of Pliocene drift, was probably reconstructed in early Pleistocene time.

Those who might have objected to the use of the name *Eoanthropus* for the Piltdown skull can no longer deny its appropriateness when applied to the lower jaw, especially since the finding of the canine tooth. While the probabilities are all in favor of the three parts belonging to one and the same individual, the case for *Eoanthropus* does not have to depend on producing positive proof to that effect. The only flint implement of Chellean type came from the layer above (no. 2), and is of later date than the human remains.

Fossil Man in Africa.—At a meeting of the Gesellschaft naturforschender Freunde in Berlin on March 17, Dr. Hans Reck made a preliminary report on a discovery of a fossil human skeleton in the northern part of German East Africa. The remains were found in Oldoway gorge on the eastern margin of the Serengeti steppe. The Oldoway gorge lays bare a series of tufaceous layers that had

been deposited in a fresh-water lake. Five deposits can be distinguished stratigraphically as well as paleontologically. In the lowest deposit fossil remains are rare, the chief specimen being a part of a rhinoceros skeleton. The second deposit is rich in fossil mammalian remains, including the human skeleton. Remains of two types of fossil elephant, both different from the living *Elephas africanus*, were especially abundant; the skull of a hippopotamus was also found in deposit number two. Bones of the antelope appear for the first time in the third deposit, which also contains bones of the elephant. Elephant remains are dominant in the fourth deposit; fish bones are also abundant. The fifth and latest of the deposits is the richest of all in fossils. It is characterized by an antelope and gazelle fauna similar to that now living on the Serengeti steppe. In this deposit Reck found no elephant remains.

The change in fauna represented by the series corresponds to a change in climate. The climate of the upper horizon was similar to that of to-day; while the elephant, rhinoceros, hippopotamus, crocodile, and fish of the lower horizons bespeak a damp woodland climate that was probably synchronous with the Würm glacial epoch in Europe.

As has been said, the human skeleton came from the next to the lowest horizon (no. 2). It is not only in a good state of preservation, but is likewise practically complete. The skeleton was found some three or four metres below the rim of the Oldoway gorge, which here is about 50 metres deep. The skeleton bore the same relation to the stratified bed as did the other mammalian remains and was dug out of the hard clay tuff with hammer and chisel just as these were. In other words the conditions of the find were such as to exclude the possibility of an interment. The human bones are therefore as old as the deposit (no. 2).

An attempt to determine the age of the human skeleton with any degree of accuracy must of course wait upon a further study of the geologic and paleontologic data as well as on a more thorough-going somatologic study of the skeleton itself. Dr. Reck is, however, already convinced that it antedates the so-called alluvial or recent period. The thickness of the deposits indicates a considerable lapse of time, especially when one recalls that at least two of the superposed deposits were laid down before the faulting occurred, and with it the drying up of the lake. The change in fauna from rhinocerous, hippopotamus, and two types of elephant both different from the living African elephant, to a gazelle and antelope fauna is likewise proof of considerable antiquity. Judging from the photograph of the skeleton still *in situ*, the man of Oldoway gorge did not belong to the Neandertal, but rather to the Aurignacian, type of man. In the absence, however, of industrial remains and even photographs in detail, any pronouncement as to racial affinities with known European Quaternary human remains would be merely a guess.

In a letter just received from Africa, Dr. Reck says the Oldoway man is now recognized as belonging to an Asiatic type. The elephant remains associated with it are also of Asiatic type no longer living in Africa. The high specialization of their molars leads Reck to the conclusion that the layer from which they and the fossil man came is a recent loess (*jüngere Diluvium*). This confirms the supposition that the Oldoway human remains might be of Aurignacian (upper Quaternary) age.

Fossil Man in Australia.—The principal event of the Australian meeting of the British Association was the presentation of a fossilized human skull from Darling Downs on the border between New South Wales and Queensland. Unfortunately this specimen was not found *in situ*, but it is in the same state of fossilization as are the remains of extinct animal species found in that vicinity. The latter are said to be of Pleistocene age. The "solidly fossilized" human skull (that of a youth) was evidently not of the Neandertal type, yet the authorities present were of the opinion that it nevertheless represented an extremely primitive type. The presence of Pleistocene man in Australia would thus seem to fall

but little short of full confirmation.

In addition to the Darling Downs skull a number of important papers were presented before the anthropological section of the British Association. The address of Sir Everard im Thurn, the Chairman of the Section, was "A Study of Primitive Character." The address was based largely on Sir Everard's experiences "as an anthropological administrator in tropical places where Eastern and Western folk have met, and where the inevitable clash between the two has occurred." His conclusion is that the ultimate cause of the decrease of the natives when in contact with civilized folk is in the difference in hereditary mentality.

At least one other paper should be mentioned because of its bearing on the methods of reconstructing the brain of fossil races of man from cranial casts. It contains the results of a series of observations made by Prof. J. Symington on the relations of the brain and skull with the object of ascertaining the extent to which casts of the cranial cavity enable us to estimate the form of the brain and especially the position of the cerebral fissures and the degree of development of the cerebral convolutions. Professor Symington finds that the position of but few of its fissures and convolutions can be ascertained from the bony cranial casts, and that the simplicity or complexity of the cerebral convolutions could not be inferred from the feeble or marked development of the digital impressions on the inner surface of the cranial wall. His observations tend to throw doubt on the reliability of descriptions of the Piltdown brain for example, or that of the man of Chapelle-aux-Saints.

Canada and the Arctic.—The anthropological and ethnological activities of Canada are under the direction of the Geological Survey. It will be recalled that the Canadian Arctic Expedition, headed by Vilhjalmur Stefansson, sailed on the *Karluk* from Port Clarence, Alaska, in July, 1913 (*A. Y. B.*, 1913, p. 641). The object of the expedition was largely anthropological; Steffansson, himself an anthropologist, took with him two other anthropologists, D. Jenness and Henri Beuchat. The *Karluk* was crushed in the ice at Herald Island, in January, 1914. Twelve of the party, including Beuchat, are missing or dead. Stefansson, who had left the ship before it was crushed, has not been heard from since (see also XXIII, *Exploration and Geographical Research*). Jenness is safe; through the kindness of the Geological Survey of Canada we are able to publish his report up to July, 1914:

When Mr. Stefansson and his hunting party became separated from the *Karluk* and journeyed east to join the southern party at Collinson Point, I dropped out at Harrison Bay to spend the winter among the Eskimos of that region. At Barrow Mr. Stefansson had engaged a half-caste lad to act as my interpreter whenever he should have leisure from his fox-trapping. With this lad I remained in Harrison Bay and its neighborhood from the middle of November until the end of January. Our food supplies were then completely exhausted; nor was there any sign of a sled coming from the east with more, as had been promised, so we travelled down to Barrow. A week later Mr. McConnell arrived with instructions for me to join the main body at Collinson Point. This journey occupied some time and it was not until March 20th that we finally reached our destination. My interpreter did not accompany me, but went back to live with his parents at Barrow. I stayed at Collinson Point for about a month, putting in order some of my notes and obtaining additional information from a few Eskimos who had gathered at the camp. In April before the rivers broke out and travelling was difficult, a short trip was made down to the Canada-Alaska boundary to make the acquaintance of a number of Mackenzie River Eskimos temporarily located at Icy Reef, and to examine, as far as the snow permitted, the ancient ruins dotted here and there along the coast. The three weeks following my return were spent at Collinson Point, where some inland natives had concentrated before scattering along the coast and, in the summer, going to meet the Barrow natives at the mouth of the Canning River. By the end of May the snow had melted sufficiently from the land to make it advisable to proceed at once to Barter Island and begin archæological investigations in that vicinity. This work occupied me until the latter end of July, when I broke up camp and

rejoined the party at Collinson Point on July 24th, the night before it abandoned its winter base and sailed for Herschel Island and the regions further east.

All my instruments and many of the ethnological books were left on the *Karluk;* the rest were at Collinson Point—in either case equally inaccessible during the winter. This was a very severe handicap, more especially in dealing with the Eskimos of this region, who have lost many of their ancient customs under the influence of the whites, and with whom therefore observation alone does not yield very profitable results. The only alternative method is through the language, but unfortunately the Eskimo language is an extremely difficult one, both structurally and phonetically. My interpreter was only in his sixteenth year, and his knowledge of English was confined to the ordinary conversation current among a few white men in a very peculiar and limited environment.

Mr. Stefansson has already investigated the ethnology of this region, so I directed my attention more especially to the language itself, and put together a kind of grammar, very imperfect and, it may be, inaccurate; but as accurate and full as I could make it during the limited time at my disposal and without the aid of a single book of reference. It is accompanied by a small vocabulary and a few texts; most of the latter being as yet untranslated.

It is well known that the Eskimos are very expert at the game of cat's cradles, and a close study of these was made both during the winter among the Barrow natives and subsequently in the early spring among the Eskimos to the eastward. More than 100 different figures have been recorded, many of them accompanied by chants. Some variants from Eskimos of different regions were also obtained, for by a happy coincidence there was a woman at Collinson Point from Cape Prince of Wales and a number of Siberian natives on the steam whaler *Belvedere,* jammed in the ice off Manning Point. It is hoped that these and further researches in the same direction will help to throw some light on the problem of the diffusion of the different branches of the Eskimo race.

On Mr. Stefansson's advice Barter Island was made the center of archæological researches by reason of the antiquity of its remains and its proximity to Collinson Point. Little could be done during the first half of June on account of the low temperature. Indeed throughout the whole of June and July the thermometer was down to the freezing point for at least half of the time, so that the frozen ground was long in thawing, and the work in consequence was very laborious and slow, although through the kindness of Dr. Anderson I was given the assistance of two Eskimos, and for a week of a third. There were formerly two settlements on Barter Island, one on the western sand spit, the other and larger on the eastern. Of the 16 ruins on the former five were excavated independently by an Eskimo who has in previous years dug sporadically at various places along the coast and sold his specimens to stray white collectors; on this occasion I purchased almost all the objects that he unearthed. The remaining 11 sites were excavated by myself, one only being left unfinished because the floor, though it had lain exposed for a week, still remained frozen. On the eastern sand spit 37 ruins were completely excavated, in ten others the floor was reached, while about 15 remained untouched. Further a large settlement was investigated on a third sand spit some three miles west of Barter Island. Here many of the ruins had been ransacked by the Eskimos themselves; but I excavated about a dozen either wholly or in part, in order to discover their relation to the ruins on Barter Island. Detailed notes were made of the principal objects discovered in each ruin, with rough plans of the settlements themselves, and of the individual ruins. An attempt was made to keep the remains separate with a view to ascertaining whether the sand spits had been occupied at different periods or not. All the specimens are now packed for trans-shipment to Ottawa, together with some others very kindly obtained for me at Collinson Point by Mr. F. Johannsen, the biologist of the expedition.

Dr. E. Sapir spent a period of about five months in continuing Nootka researches. A large number of mythological and ethnological texts were procured. These, with those obtained earlier, form an excellent basis for the thorough study of the Nootka language. The bulk of the work consisted in securing data on social organization, to some extent also on religion. A considerable number of valuable specimens was also added to the Nootka material already owned by the Survey.

Of the other members of the staff, C. M. Barbeau took a brief trip in the summer to the Huron Indians of Lorette to obtain from them stories

of European origin, in order to ascertain to what extent European influences can be traced in Wyandot mythology proper. Dr. A. A. Goldenweiser carried on researches in Iroquois social organization in continuation of previous work; this time the New York State Iroquois of Cattaraugus and Tuscarora Reserves were visited, special attention being directed to Tuscarora social organization. Dr. P. Radin continued his researches in social organization, religion, mythology, and language among the Ojibwa Indians of Ontario and the adjoining parts of the United States.

Anthropological research was started during the summer among the conservative Canadian Sioux of Manitoba by W. D. Wallis, who spent about four months among the Indians, during which time he secured full data on religion and social organization; a valuable collection was also obtained for the Museum. E. W. Hawkes undertook an anthropological reconnaissance of the Labrador Eskimo, later enlarging the scope of his work so as to take in the Eskimo of Ungava and Hudson's Strait, and some of the Eskimo tribes of Hudson Bay. The six months spent in this work yielded data of great value, among other things a large ethnological collection having been obtained for the Museum. In the course of 1914 the section of physical anthropology was definitely inaugurated by the appointment of Mr. F. H. S. Knowles as permanent physical anthropologist of the Survey. No field research was undertaken during this period, but an intensive study was begun of the Iroquoian skeletal material obtained by the Survey in 1912.

Archeological field work was carried on in three regions: northern Nova Scotia, eastern Ontario, and southwestern Manitoba. The work in northern Nova Scotia under Harlan I. Smith, was confined to the shell-heaps of Merigomish Harbor, and resulted in obtaining perhaps the most complete and detailed data so far secured regarding the archeology of Nova Scotia, as well as one of the three largest collections of Nova Scotian specimens. No burials were discovered. These shell-heaps are usually located in the most sheltered places, and on islands rather than on the mainland. The sites are above high tide, but usually on low places sheltered from the wind by bluffs. They are probably the remains of Micmac villages. Chipped points for arrows, celts, pottery, and sharpened bones, were very numerous. Little knives or chisels made from beaver teeth, harpoon points made of bone, and other artifacts were frequently found. Gouges were entirely absent, although common enough from Nova Scotia.

The work in eastern Ontario was carried on by W. J. Wintemberg, and was confined to reconnaissance in the St. Lawrence Valley south of Ottawa. This reconnaissance resulted in the discovery of a number of rich sites of the same culture as that found at Roebuck, and also sites apparently of Algonquian origin. There are several cultures represented by specimens found in this general vicinity, and it is the purpose of the archeological work to monograph each of these cultures, and so far as possible to supply to museums in Canada and elsewhere exhibits illustrating the monographs.

The archeological exploration in southwestern Manitoba was carried on by W. B. Nickerson and was directed toward the exploration of mounds and village sites. The results were much more gratifying than in previous years. The archeological specimens include, besides what is ordinarily found in the region, objects made of copper, marine shells and stone that are rare. In the region of the Pembina valley, near Snowflake, a force of two or three men was employed four weeks in the excavation of two burial mounds. A large mound known as Star Mound, located on an eminence 100 feet above the plain, was thoroughly explored. It was a great effigy mound in the form of a beaver, with the head south. The Sims mound consisted of two dome-shaped ends, connected by a long embankment, a form found also in the Souris region. In both these mounds the original posture had been that of the seated body. The result of Mr. Nickerson's investigation into the prehistoric archeology of Manitoba thus far shows a very old culture, oldest in the region of

the Pembina and most recent in the region of the Souris. Pottery is almost entirely lacking from the Pembina region, while it is fairly plentiful in the Souris valley.

California and the Pacific Coast.—Prof. A. L. Kroeber's recent reëxamination of the evidence bearing on Brinton's old but not generally accepted finding of a genetic relationship between the Chontal, Seri, and Yuman Indian languages, confirms Brinton's judgment completely. Chontal and Seri being Yuman are Hokan; the Hokan family thus now has a known extent of over 2,000 miles on the Pacific coast of America. So definite are the resemblances furnished by the Chontal and Seri that Kroeber makes use of them to elucidate problems in the Hokan languages of northern California. The results of the study are now ready for the press.

Southwest.—As in past years, the American Museum of Natural History still carries on field work in this region, the work of the season of 1914 including archeological research in the Galisteo Basin, New Mexico; and linguistic and ethnological researches among the San Carlos Apache, the northern Paiute of Nevada, and the Pawnee.

The School of American Archæology has had two expeditions in New Mexico. One of these was to the old mission pueblo of Quaria. While the work at Quaria was in progress, arrangements were consummated whereby a portion of the site of Gran Quivira in the same district became the property of the school. The ownership of the entire area covered by these famous ruins is now vested in the school and the Government of the United States. The second expedition in New Mexico had as its objective point the ruins of Amoxiumqua on the plateau west of the Jemez mountains.

Dr. J. Walter Fewkes, representing the Bureau of American Ethnology, has conducted important archeological investigations in the Mimbres valley, New Mexico, which resulted in finding a new type of prehistoric Pueblo pottery. By its geometric decoration and especially by its life forms, this type affords an insight into the ancient culture of the Pueblo region to the north of the Gila valley. Mrs. M. C. Stevenson has practically concluded her studies of the Tewa Indians of New Mexico, the results of which are incorporated in an extended memoir soon to be published.

Iroquoian and Siouan Tribes.—A valuable and interesting collection of Seneca myths, recorded chiefly by the late Jeremiah Curtin and partly by J. N. B. Hewitt, of the Bureau of American Ethnology, was annotated and edited by the latter, who has furnished also a few texts of myths in Seneca with interlinear translation. This material has been completed and is now ready for the press. Alanson Skinner of the American Museum of Natural History has studied the social and ceremonial organization of the Dakotas and southern Siouan tribes. Francis LaFlesche continued his studies of the Osage Indians, devoting special attention to their ceremonies and rituals. James Mooney continued his researches among the Cherokee of North Carolina, with special reference to their sacred formulas; he also pursued his study of the population of the Indians, past and present, with the causes of the decrease since their first contact with white people.

Muskhogean and Algonquian.—Investigations among the Creek Indians and affiliated tribes were conducted by Dr. John R. Swanton of the Bureau of Ethnology. Special attention was devoted to the busk ceremonies, and additional information was obtained in regard to the Hitchiti language, which includes a number of texts in the native tongue. Related to Dr. Swanton's Muskhogean studies was the editing of the proofs of Byington's *Choctaw Dictionary*, which included supplying the English-Choctaw portion. This dictionary is almost ready for publication.

Studies among the Fox Indians of Iowa were continued by Dr. Truman Michelson, who also visited the Sutaio, a remnant Algonquian tribe now living with and forming part of the Cheyenne of Montana. A fairly large Sutaio vocabulary was recorded, but only about a dozen words were found to be radically different from Cheyenne. While among the Foxes Dr. Michelson devoted special attention

to their social organization, which he elucidated almost to completion.

Ohio.—The new Museum of the Ohio State Archæological and Historical Society now houses important collections from every county in the state. W. C. Mills, the curator, has explored a mound at Portsmouth where unique specimens were found. He has published a valuable *Archæological Atlas of Ohio* (Columbus, 1914), showing the distribution, county by county, of the various classes of prehistoric remains, and including a map of the principal Indian trails and towns.

New Jersey.—The Geological Survey of New Jersey and the American Museum of Natural History have been coöperating in an archeological survey of the state. A tentative list of sites has been compiled and the locations plotted on maps. A working classification of these sites has been formulated. From data at hand it appears that the surface sites are rare except on restricted areas in the northern, central and southern parts of the state. Since this corresponds with the distribution of the Lenape Indians during the early settlement period, the conclusion is that practically all such surface archeological remains are referable to the historic Indian and his immediate ancestors. A preliminary report of the field work to date was published in 1913.

Nebraska.—F. H. Sterns of Peabody Museum at Harvard has continued his investigations of the prehistoric sites in Nebraska, exploring a series of habitation sites which are much older than the prehistoric sites heretofore discovered and which seem to belong to a different people.

Mexico and Central America.—The International School of American Archæology and Ethnology, under the direction of Prof. Alfred M. Tozzer, although laboring under serious difficulties due to the disturbed conditions in Mexico, completed the excavation of a temple and house site near Mexico City, where a large collection was gathered. Dr. Robert E. Merwin, sent out by the Peabody Museum of Harvard University, has explored the eastern coast of Quintana Roo, Mexico; he also investigated the ruins of four ancient cities, previously unknown, in the Peten district of Guatemala.

Dr. Edgar L. Hewitt, director of the School of American Archæology, assisted by members of his staff, has excavated the buildings on the east and north sides of the Temple Court at Quirigua. A number of shafts were also sunk in various parts of the great plaza. These were extended to a depth of 12 ft., disclosing the historical stratification of the site. At an average depth of one metre were found a pavement and numerous remains pertaining to the period of the great monuments and larger temples. This condition is widely extended over the Motagua valley, as shown by the exploration of miles of ditches and railway cuts, showing that there has been a silting up of the valley to the depth of about one metre in the 15 to 18 centuries that have elapsed since the abandonment of Quirigua. At a depth of six to seven feet is found a second culture stratum, corresponding probably to the epoch of the older buildings, which lie under and in part form the substructure of the later buildings. This may be the stratum to which the lesser monuments belong. At a depth of 10 to 12 ft. was found a stratum containing potsherds, charcoal and chipped stone. Between the various culture strata are layers of silt, indicating long continued deposition from the slow movement of flood waters. The importance of these new facts is obvious.

Further exploration of the Motagua valley has brought to light one sculptured stela, heretofore unknown. It stands at a distance of one mile from the north end of the great plaza at Quirigua, surrounded by the small mounds of an ancient village. The initial series seems to place the monument among the earliest in the Quirigua district. The making of casts of eight of the monuments occupied a considerable part of the season. The glue process was used in making the molds, resulting in a perfection of reproduction heretofore unattained in the making of casts in the tropics.

Colombia and Ecuador.—Prof. M. H. Saville, representing the Heye Museum, New York, has just returned with a large collection of antiquities

from the west coast of Colombia, where he found evidences of four different cultures, one of which is unlike anything hitherto noted in either North or South America. The work of the past season was in continuation of researches previously carried on by Professor Saville in Ecuador, likewise under the auspices of the Heye Museum. While on a previous expedition (1913) to Ecuador, Professor Saville obtained some remarkable examples of pre-Colombian decoration of human teeth (*Amer. Anthrop.*, n. s., xv, 377). In an upper jaw from Atacames the two upper middle teeth are decorated by the insertion of thin gold discs in cavities drilled in the enamel of the outer face of the teeth. In addition to the inlay, the right median incisor was found to have been replaced by a right lateral incisor, which does not belong to the jaw but was implanted to replace the middle incisor. A still more remarkable example of teeth decoration, from La Piedra near the mouth of the Esmeraldas river, was given to Professor Saville while on the same trip. The skull is that of an adult female. Instead of small discs being set into artificial cavities, in this case all four upper incisors and the two upper canines were almost completely covered on the outer face by an overlay of gold. No enamel remains except narrow bands at the extremities and near the necks. The overlays are missing in all but one of the teeth; this tooth shows that the gold covering was slightly folded or bent over each side of the tooth for greater security.

Brazil and the Guianas.—The South American expedition of the University of Pennsylvania Museum has completed a year of highly successful explorations in the region lying along the boundary between Brazil and the Guianas. Besides important geographical discoveries, the expedition has obtained ethnological information relative to 12 different tribes, half of which were hitherto entirely unknown, including vocabularies and other linguistic studies, anthropometric measurements, collections of myths and legends, and about 600 photographs. A large ethnological collection gathered among the Carib, Arowak, and other tribes of southern British Guiana, has just been received at the Museum.

Peru.—The Peruvian expedition of 1914-15, of which Prof. Hiram Bingham of Yale University is the Director, is, like the Peruvian expedition of 1912, being conducted under the auspices of Yale University and the National Geographic Society. The work done during 1914 has been chiefly topographical, and only to a slight extent archeological and anthropological. In the face of extremely adverse weather conditions a considerable area to the north and west of Cuzco has been mapped. The altitude of this great snow-peak about which the topographic work has centered has been shown to be 20,540 ft. Several interesting archeological finds have been made, including some small wooden and bronze artifacts at the edge of a glacier, 16,000 ft. above sea level, which would seem to indicate that some Inca had been buried, or had been lost, on the ice. A number of hitherto unreported ruins or groups of ruins have been discovered and mapped, including the important fortress of Huata, where further work is planned for the expedition in 1915. The photographing of the native Indians by the surgeon of the expedition has been continued to a certain extent. The future plans also call for geological and archeological studies on the basis of the recently constructed maps.

Handbooks of American Archeology.—In pursuance of his plan to prepare a series of handbooks on the archeology of the American Indians of northern America, W. H. Holmes, of the National Museum, has continued almost to completion the first volume of this series. D. I. Bushnell, Jr., has made progress in the preparation of the *Handbook of Aboriginal Remains East of the Mississippi*, designed for eventual publication as a bulletin of the Bureau of Ethnology.

Indian Music.—Miss Frances Densmore has completed her field studies of the music of the Sioux Indians and initiated those of the Ute. The results of Miss Densmore's Sioux studies are ready for publication as a bulletin of the Bureau of Ethnology uniform with the bulletins on the

music of the Chippewa. Considerable use is being made of Miss Densmore's studies of aboriginal music by composers, a number of the songs recorded and analyzed by her having been adapted for purposes of orchestral performance.

Indian Linguistics. — The special linguistic investigations required in connection with the *Handbook of American Indian Languages*, in process of publication by the Bureau of American Ethnology, were continued under the immediate direction of Dr. Franz Boas, who, in addition to the editing of the sketches to form Part 2 of the work, devoted field study to the Kutenai language, and did much preparatory work on the Salish dialects. Dr. Frachtenberg continued his linguistic researches among the remnant tribes of Oregon, notably the Siuslaw, Alsea, and Kalapuya, part of the results of which will be incorporated in this *Handbook* in the form of grammatical sketches. Dr. Boas also furnished a memoir on Tsimshian mythology, with an ethnologic sketch of the Tsimshian, and a conclusion in which he discusses the place taken by the mythology of these Indians among that of the Northwest Coast tribes generally. This memoir is practically ready for publication.

England.—Dr. E. A. Hooton was in England during the summer on a special expedition for the Peabody Museum of Harvard. Although he was soon forced to discontinue the work on account of the disturbed condition of the country, he succeeded in examining a group of barrows, eight of which were round barrows dating from the late bronze age. One long barrow excavated contained fragmentary remains of skeletons in addition to a quantity of Neolithic potsherds. From a neighboring gravel pit, Knowle Pit, Savernake, Wilts, a series of River Drift implements was obtained.

Africa.—Oric Bates, representing Peabody Museum of Harvard University, has explored the littoral of the desert west of Egypt, where he found a distinct and hitherto unknown group of archeological objects. He has sent to the Museum a small collection of Sudanese material, a representative collection of Fayum flints, and a collection of Libyan objects secured by his excavations.

Palestine and Syria.—Dr. Charles Peabody made a reconnaissance trip in Palestine and Syria. In July he examined sites near Jerusalem, notably Mt. Skopus, and later continued his work in the neighborhood of Beyrout. Exacavations were made in the caves of the Dog River and of Antelias. Specimens of flint were numerous and good and in places there were numerous contemporary shells and animal bones. Although forced by the European War to discontinue researches in this region as early as Aug. 16, Peabody had already succeeded in gathering an important collection for Peabody Museum of Harvard University.

New Periodicals. — The year is marked by the appearance of at least two new periodicals of interest to anthropologists. For some years the Archæological Institute of America has felt the need of a semi-popular journal that would appeal to a larger number of readers than the technical journals already existing. This need seems to have been met in admirable fashion by *Art and Archæology*, a monthly journal of some 45 pages, the first number of which appeared in July, 1914 ($2.00 a year, Concord, N. H.).

The meeting of the International Congress of Prehistoric Anthropology and Archeology, held at Geneva in September, 1912, was made the occasion of the official announcement of the founding of an Institute of Anthropology at Geneva. The first number of the organ of this Institute appeared in May, 1914, bearing the name, *Archives Suisses d'Anthropologie Générale*. This review will publish articles pertaining to all quarters of the globe. But its special task will of course be the gathering of documents pertaining to the anthropology, ethnology, and archeology of Switzerland.

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and ethnology, with special emphasis on the races and peoples of Europe, the natives of the German protectorates, and racial affinities and unity of the human race.

CLODD, Edward.—*The Childhood of the World.* (New York, Macmillan Co., 1914.)—New edition, rewritten and enlarged. A simple account of man's origin and early history.

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CURTIS, E. S.—*Indian Days of Long Ago.* (Yonkers, N. Y., World Book Co., 1914.)—Written in order to give a more intimate view of Indian life in the old days. It is also full of Indian lore. It calls attention to the great divergencies in Indian life and the number of languages. The little volume is tastefully illustrated.

DÉCHELETTE, Joseph.—*Manuel d' Archéologie Préhistorique Celtique et Gallo-Romaine.* (II, deuxième partie, *Premier Age du Fer ou Époque de Hallstatt,* Paris, Auguste Picard, 1913.)—The continuation of a volume that covered the bronze age (*ca.* 2500 B. C. to 900 B. C.). It is devoted to the so-called Hallstatt epoch or first iron age (900 B. C. to 500 B. C.). During 1914 there appeared the third part of this volume (pp. 912-1683), covering the second iron age or epoch of LaTene (500 B. C. to the beginning of the Christian era).

GEIKIE, James.—*The Antiquity of Man in Europe.* (New York, D. van Nostrand Co., 1914.)—Ten lectures dealing with man and the ice age. He believes that man might have been living on the continent of Europe 500,000 years ago and perhaps even longer.

HRDLICKA, Ales.—*Anthropological Work in Peru in 1913, with Notes on the Pathology of the Ancient Peruvians.* (Washington, Smithson. Misc. Coll., Publ. 2246, 1914.)—The principal objects of the trip were to determine as far as possible the anthropological relation of the mountain people with those of the coast; to make further studies regarding the distribution of the coast type; to determine the type of the important Nasca group of people; and to continue researches on Indian and especially pre-Columbian pathology.

MARTIN, Rudolph.—*Lehrbuch der Anthropologie.* (Jena, Gustav Fischer, 1914.)—A monumental work of 1,197 pages, fully illustrated. It covers thoroughly the field of somatology, including anthropological methods, and is recommended alike to students, physicians, and scientists who intend to gather anthropological data in the field.

MOOREHEAD, W. K.—*The Indian, a History.* (Andover, Mass., Andover Press, 1914.)—An illustrated historical narrative of Indian events between 1850 and 1914; dealing also with the present condition of the American Indian, his political history and other topics.

QUIGGIN, E. C.—*Essays and Studies Presented to William Ridgeway on His Sixtieth Birthday.* (Cambridge, University Press, 1913.)—About half the work is devoted to anthropology and comparative religion, the articles being written by some of the best known British authorities, Duckworth, Frazer, Haddon, Joyce, Balfour, Rivers, G. Elliot Smith, *et al.*

SPECK, F. G.—*The Double-Curve Motive in Northeastern Algonkian Art.* (Geol. Sur. of Canada, Mem. 42, Anthrop. Ser. No. 1, Ottawa, 1914.)—A brief paper fully illustrated presenting a review of a very characteristic and widespread motive in decorative art, brought to light through recent investigations among the Algonkians of the valley of the St. Lawrence and the contiguous regions north and south of it.

SOCIOLOGY

HERBERT N. SHENTON

Theory.—Sociology to-day recognizes the complexity of social causation and attempts to combine into a coherent whole the many factors hitherto treated as independently efficient causes of the social process. Typical of the synthetic tendency of sociological theory is the work of Graham Wallas, *The Great Society.* According to Mr. Wallas, the extension of the social scale, due mainly to mechanical invention, has created for each human being a world-wide environment. To understand the phenomena of this "great society" it is necessary to consider all the facts of human psychology and organization. Every human being possesses certain

inherited type-facts or "dispositions." Dispositions are divided into instincts and intelligence. Each human disposition has its appropriate stimuli. We cannot, as social philosophers and theorists have hitherto attempted, explain all social phenomena in terms of one disposition. We must substitute a more complex conception of the stimulation of all our dispositions by our social environment. In dealing with the organizations of human dispositions, Mr. Wallas shifts to the plane of consciousness, dividing the facts into the elementary classes of cognition, feeling, and conation, from which he respectively derives thought-organization, will-organization, and happiness-organization. Consistent with the pragmatic spirit of modern sociology is Mr. Wallas' avowed purpose of "bringing the knowledge which has been accumulated by psychologists into touch with the actual problems of present civilized life." Illustrative to a lesser degree of the synthetic tendency above mentioned is the work of Prof. Franz Oppenheimer of the University of Berlin, *The State: Its History and Development Viewed Sociologically.* To Gumplowicz's idea of the state as a social institution forced by a victorious upon a defeated group for the purpose of self-security, Professor Oppenheimer has added an economic phase, to the effect that this dominion had no other purpose, teleologically, than the "economic exploitation of the vanquished by the victors."

The European War.—The European War is in part at least the result of repeated suggestion. Military equipment, training and ideals, social customs, sanctions and institutions grown up around them have aroused a militant emotionalism which conceives the nation as a social end, perhaps *the* social end. This self-centered nationalism has, by a crisis, called a halt to the integrating of such international solidarities as are based on economic interest, religion, race, class, or culture. The urging of selfish group interests and the proclamation of group danger have caused a segregation around national emblems, shibboleths and standards.

In this war some of the sociologists see primarily efficient militarism and plastic democracy in a struggle for supremacy. Others are concerned over the loss of human vitality, society's most valuable capital, which like economic capital is universal, so that a loss anywhere is ultimately a loss everywhere. Some emphasize the ruthless selective process of the murderous machinery of modern war which in a few months may devastate the results of ages of mankind's most heroic and choice selective processes.

In America the larger, more inclusive social consciousness and the resultant social responsibility have expressed themselves in ways which react most positively upon the further development of this same consciousness and responsibility. These are essential to a rationally conscientious neutrality and are the basis of a toleration which holds in peaceful poise within our borders large numbers of representatives of every group in the conflict. The neutrality and toleration in their turn develop the consciousness and responsibility. The pouring out of sympathy and wealth in behalf of every individual who suffers and needs, almost regardless of religion, race, nationality or any other social classification, must react as an assimilating force upon those who thus consciously act together, and the activities and appeals of the many and various agencies bring about the realization of particular international group interest, which most dramatically arouse an awareness of our international interests, sympathies and responsibilities.

Social Assimilation.—The increasing tendency to consider sociological theory as a prelude to programmes of social control and social reconstruction and the recognition of the fact that the effectiveness of such programmes is largely dependent upon the homogeneity of the social groups to which they are applied, is resulting in a more fundamental examination of the problems of social assimilation. Indicative of this fact are the contributions contained in the *Proceedings of the American Sociological Society* for 1913. Three of the papers show a remarkable unity of idea. The first of these was read by Prof. Herbert A. Miller of Olivet College. Opposed to all world-movements

toward assimilation, there is, according to Prof. Miller, a rising national individualism. Socialism, antithetical in principle and developing concomitantly, has not checked the rise of national individualism. The widespread growth of nationalism forces us to take cognizance of the fact that group consciousness of a common language, common traditions, or a feeling of the unity of blood through some common ancestor forms a stronger bond than economic interests. Quite in harmony with these ideas was the paper presented by Prof. Robert E. Park of the University of Chicago, on "Social Assimilation in Secondary Groups, with Particular Reference to the Negro." Professor Park points out that the Negro as a domestic slave and to a lesser degree as an agricultural slave was rapidly assimilated by the white race in the antebellum South, assimilated in the sense that the two races achieved a corporate character. Since the war, however, there has been a parallelism between the nationalist movement in Europe and the progress of race adjustment in the southern states. The races in the South are tending toward a biracial organization. The third paper of this group was by Prof. Wm. I. Thomas of the University of Chicago, on "The Prussian-Polish Situation: An Experiment in Assimilation." The efforts of Prussia to assimilate the Poles of its eastern provinces progressed merrily until Bismarck attempted to substitute the German for the Polish language in the schools. Then arose an antagonism which crystallizing into a movement toward nationalism has frustrated every subsequent attempt of the German Government to mold the Polish people to a fixed standard. The decided emphasis upon nationalism which characterizes these three papers is doubly significant in the light of the present European War.

Other important papers contained in the *Proceedings* deal with assimilation from somewhat different viewpoints. Prof. Fayette Avery Mackenzie of Ohio State University advances the thesis that the Indians of the United States are not assimilated, taking as a measure of assimilation the degree of blood mixture, legal status, and education. Only by the combined efforts of the white race and the red race can the Indians be assimilated, the white race aiding the process through government, industry and religion, the red race through initiative and leadership. In a paper on "Social Assimilation: America and China," Prof. Charles Richmond Henderson of the University of Chicago shows that the contact between Chinese and Americans has resulted and will continue to result in a gradual transformation of Chinese ideals, ethics, education, diplomacy and commerce. Prof. Albert Ernest Jenks of the University of Minnesota, in an interesting paper on "Assimilation in the Philippines as interpreted in Terms of Assimilation in America," describes the conditions which combine to cause the American power of assimilation and seeks to discover how far these conditions obtain in the Philippines. The conclusion arrived at is that the continuation of the American policy in the Philippines will result in a marked degree of assimilation.

The Inductive Method.—The belief in the validity of *a priori* generalization survives to-day only as an intellectual atavism. If the recent development of sociology can be said to be characterized by any one tendency it is the tendency to substitute for the vain imaginings of pure-thought social philosophers the inductively verified conclusions arrived at by refined statistical methods. Sociologists are beginning to realize that the laws behind the empirical evidence of collective phenomena can only be revealed by the scientific use of statistics. Noteworthy among the recent contributions to the literature of inductive method is the work of Prof. Franz Zizek, *Statistical Averages: A Methodological Study.* Prof. Zizek's book is a study of abstract statistical method as applied to "the great central problem of averages." Avoiding mathematical language Professor Zizek nevertheless "deems some consideration of mathematical statistics indispensable because its problems do not differ essentially from those of elementary scientific statistics." In concentrating upon averages the work attains to a helpful unity.

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WARD, L. F.—*Glimpses of the Cosmos: a Mental Autobiography* (in 12 volumes). (New York, Putnams, 1913.)—"The volumes present not merely the writings of this distinguished thinker and author, but may be described as recording, so to speak, the evolution of his brain."

ZIZEK, F.—*Statistical Averages: A Methodological Study.* (New York, Henry Holt, 1913.) See *supra.*

ECONOMICS

WESLEY C. MITCHELL

Systematic Works. — Herbert J. Davenport's *Economics of Enterprise* (Macmillans), which appeared too late in 1913 to be mentioned in the last issue of the YEAR BOOK, has excited lively interest among economic theorists. In "the present competitive order," Professor Davenport holds that economics is the "science that treats phenomena from the standpoint of price." The problem, how are prices determined, can be solved in his opinion only by accepting the "private and acquisitive point of view." That is, attempts to explain economic phenomena must proceed on the assumption that every individual has his own peculiar scale of utilities as a consumer, of the gain-bringing capacities of producers' goods as an enterpriser, and of discounting future services as a purchaser of durable goods. The attempts to base explanations on such concepts as social utility, specific productive efficiency, and social time-discount merely confuse the problem; though when an economist passes from his theoretical task of explaining to the ethical task of judging the régime of pecuniary competition he must leave the viewpoint of private acquisition and take the viewpoint of social welfare.

Three important discussions of this book have appeared. Alvin S. Johnson (*Quart. Jour. of Economics*, May, 1914) devotes himself mainly to acute criticism of certain logical inconsistencies which he detects in Davenport's system. J. M. Clark (*Pol. Sci. Quart.*, June, 1914) defends the "productivity theories" against Davenport's attacks. Finally, Frank A. Fetter (*Jour. of Pol. Economy*, June, 1914) finds the main principles of the book "in measurable accord with the American psychological doctrines," but objects to Davenport's "price conception of economics" and to his theory of interest.

Theory of Interest.—The controversy concerning the theory of interest, begun afresh in December, 1912, by H. R. Seager's critique of the impatience theory, carried on in 1913 by Professors Irving Fisher, Seager, and H. G. Brown, has been continued in 1914. In the *American Economic Review* for March, Professor Fetter argued that time-preference is the only valid explanation of interest, while in the June number of the same journal, Professor Brown replied that productivity remains in the last resort an independent factor in the determination of interest, and cannot be resolved into time-preference. Mean-

while a new writer had entered the lists, Mr. C. G. Hoag, whose *Theory of Interest* (Macmillans) was published in February. He finds the key to the problem in the concept of the principal as a sum constant in value to the market of the kaleidoscopic society that changes with each moment of time. To the individual, however, who grows old and dies while society lives on, such a nominally equivalent sum due in the future is less valuable than the same sum at present. Hence the willingness to pay interest for loans and the unwillingness to lend without interest.

Economic Psychology. — Divergent views concerning the relations between economics and psychology seem to be producing three distinct types of economic theory. For example, Hoag is a frank hedonist; Professor Davenport rejects hedonism and thinks it possible to dispense with a psychological foundation for his analysis; Professor Veblen also rejects hedonism, but endeavors to provide part of a new psychological basis for economics. His *Instinct of Workmanship* (Macmillans) traces the cultural rôle played by man's "animus for efficiency" from the stone age to the days of capitalism. E. L. Thorndike's *Original Nature of Man* (Teachers' College, Columbia), though written by a psychologist for psychologists, has also aroused much interest among economists. A review of recent literature within this borderland appeared in the *Quarterly Journal of Economics* for November, 1914.

Business Cycles.— *The Cause of Business Depressions*, by Hugo Bilgram and L. E. Levy (Lippincotts), argues that during prosperity the effective supply of the currency does not increase as fast as the money-work to be done. Hence our periodical monetary stringencies, which cause business retrenchments, unemployment, and all their fellow ills. The remedy is held to lie in accepting assets, including real-estate liens, as the basis of currency.

The agricultural theory of cycles has found a new and brilliant exponent in Prof. H. L. Moore (*Economic Cycles*, Macmillans). By a mathematical analysis of statistical data, he arrives at this law:

> The weather conditions represented by the rainfall in the central part of the United States, and probably in other continental areas, pass through cycles of approximately thirty-three years and eight years in duration, causing like cycles in the yield per acre of the crops; these cycles of crops constitute the natural, material current which drags upon its surface the lagging, rhythmically changing values and prices with which the economist is more immediately concerned.

Theory of Rate Regulation.—Questions of the day in their economic aspects received at least their accustomed share of attention in 1914. All the economic periodicals published articles dealing with the Federal Reserve Act. The other current problems most discussed by economists were the new income tax, the new tariff law, the policy toward trusts, the regulation of railways, and the economic issues presented by the European War. All of these topics are treated in other sections of the YEAR BOOK; but it is proper to note here that the fundamental problems involved in public control over prices are gradually being submitted to a strictly scientific analysis. Most of this work deals particularly with the theory of rate regulation. J. M. Clark has compared the determination of prices under conditions of potential competition with that which obtains under the (theoretically) more familiar condition of active competition (*Quart. Jour. of Economics*, August, 1914). In a more concrete way, the same writer has examined the bearings of rising interest rates and of betterments made out of income upon the returns to be allowed to investors in railway securities (*Am. Econ. Rev.*, September, 1914). Allyn A. Young has made an acute study of the fundamental principles of depreciation as related to the problems of valuation for purposes of rate control (*Quart. Jour. of Economics*, August, 1914). R. E. Heilman has shown the existing diversity among the methods of valuation currently used by commissions in the valuation of public utilities (*ibid.*, February, 1914). Finally, W. Z. Ripley has published an elaborate study of railway over-capitalization, the advance guard of his eagerly-awaited book on railway finance (*ibid.*, August, 1914).

XXVII. PSYCHOLOGY AND PHILOSOPHY

PSYCHOLOGY

HERBERT SIDNEY LANGFELD

General.—The most fundamental problem of psychology, that of the relation of the mental to the physical world, has been treated at length by several scientists. H. C. Warren in his presidential address before the American Psychological Association chose as his subject "The Mental and the Physical" (*Psych. Rev.*, March, 1914). He advocates as a working hypothesis a double-aspect view, which he terms "monodualism." He approaches a realistic interpretation such as that consistently developed by E. B. Holt in his *Concept of Consciousness* (Macmillan). Holt believes that a last analysis reveals elements which he terms neutrals. Consciousness consists of certain relations of these neutral elements, which are not in themselves either mental or physical (see also *Philosophy, infra*). In H. Münsterberg's text-book, *Psychology, General and Applied* (Appletons), one finds the hypothesis of psychophysical parallelism. The author has divided his book into causal and purposive psychology. The first part of the book is the traditional one of analysis and explanation by reference to the underlying physiological processes. The second part is a unique departure, for a text-book. Human motives are discussed and the explanation is a teleological one. Morton Prince in *The Unconscious* (Macmillan) has described most clearly his idea of the mechanism of mental phenomena.

Methods.—Concerning general methods of experimental psychology the principal discussion still centers about the question of behaviorism *versus* introspection, that is whether psychology, both human and comparative, should be entirely objective, drawing its conclusions solely from the observed reactions of the individual or whether it should also consider the reports made by the subject of that which is going on in the mind. Many psychologists believe in a combination of these two methods in human psychology, but J. B. Watson still maintains his radical view as to the necessity of a strictly objective method. In his latest book, *Behavior, an Introduction to Comparative Psychology* (Holt), he has outlined a behavioristic programme, which conveys in a concise manner his present position. J. Dewey supports behaviorism in an article entitled "Psychological Doctrine and Philosophical Tendency" (*Jour. of Philos., Psych., and Scientific Methods*, Sept., 1914). B. H. Bode in "Psychology as a Science of Behavior" (*Psych. Rev.*, Jan., 1914) makes a plea for a strictly objective method. E. B. Titchener (*Proc. Am. Philos. Soc.*, liii, 1914) most strenuously opposes this movement. He closes his address with the remark: "Meanwhile introspective psychology, which is now entering upon this third stage of its scientific career, will go quietly about its task, wishing the new movement all success, but declining, with the mild persistence natural to matter of fact, either to be eliminated or to be ignored." H. C. Warren in the address mentioned above, in agreement with Titchener, believes that as psychology treats of the relation between the individual and his environment it should study both behavior and the events of consciousness. One will see from a glance at the *Journal of Abnormal Psychology* that the Freudian method of psychoanalysis continues to be discussed.

Experimental Human Psychology.—During the year there have been

comparatively few investigations in psychophysiology. Most of the articles published have dealt with the higher processes, such as attention, memory and judgments. Considerable attention has been given to the investigation of individual differences both with practical and theoretical aims. The study of the affective side of mental states has also progressed and several important researches in psychological esthetics have been made. Of the investigations upon the sensations might be mentioned W. S. Hunter's article, "The After-Effect of Visual Motion" (*Psych. Rev.*, July, 1914). There are several causes of this phenomenon, namely, retinal changes, association factors and ocular muscles. From experiments in psychophysics, S. W. Fernberger concludes that it is better to eliminate the extreme stimuli in the method of constant stimuli as he has presented it (*Am. Jour. of Psych.*, Jan., 1914). In the last report from the laboratory of the University of Iowa (*Psych. Monogr.*, June, 1914) one finds that the chief interest has been in acoustics. The papers have both theoretical and practical value. There have been several investigations performed under abnormal conditions. A. T. Poffenberger, Jr. (*Am. Jour. of Psych.*, Jan., 1914), has compared the effect of strychnine with that of caffeine as reported by H. L. Hollingworth. Caffeine causes an increase in efficiency while strychnine has no effect. At the Nutrition Laboratory of the Carnegie Institution of Washington in Boston, a series of tests was made by the writer upon a man fasting 31 days (*Psych. Monogr.*, July, 1914). There was a decrease in motor efficiency but the higher mental processes did not seem affected. In the field of emotions a most suggestive work for psychology is W. B. Cannon's physiological investigations upon the effect of emotions (*Am. Jour. of Psych.*, Jan., 1914). In an investigation entitled "The Expression of the Emotions" (*Psych. Rev.*, Jan., 1914), A. M. Feleky has introduced the interesting objective method of photographing the facial expression. In experimental esthetics the most important contribution is H. T. Moore's "The Genetic Aspect of Consonance and Dissonance" (*Psych. Monogr.*, Sept., 1914). He concludes that the increase in the degree of consonance is a direct result of the frequency with which an interval is heard. This has important bearing upon the modern tendencies in music as well as a theoretical significance. An interesting example of the work upon individual differences is J. W. Bridges' thesis, "An Experimental Study of Decision Types and Their Mental Correlates" (*ibid.*, Aug., 1914). Special attention was given to a correlation of constancy and accuracy of decision and suggestibility. In the work upon the higher mental processes the introspective method continues to play a leading rôle. The two following papers are typical of this form of investigation. E. O. Finkenbinder has investigated the mental mechanism in the solution of problems (*Am. Jour. of Psych.*, Jan., 1914). He found that contrary to the assertions of German and French psychologists there is no recall without mental imagery. W. S. Foster, in his work "On the Perseverative Tendency," has found that an idea never occurs entirely independently but always with the coöperation of associative processes. A good illustration of the objective method is D. Mitchell's investigation of attention (*Psych. Monogr.*, Oct., 1914). As is seen from the title of F. A. C. Perrin's investigation, "An Experimental and Introspective Study of the Human Learning Process in the Maze" (*ibid.*, June, 1914), both methods have been used.

Abnormal Psychology. — As was mentioned above, there is much interesting literature upon the method of psychoanalysis as advocated by Freud. Many scientists disagree with Freud that disorders of the mind have invariably a sexual basis. This opposition to his fundamental principle seems to be growing in this country. There has not been a great amount of purely psychological work in the abnormal field reported. The increase in psychological clinics for backward children is marked, and several psychologists are working in the hospitals. One of the chief interests at present is the development of tests. G. Stanley Hall in a long paper entitled "A Synthetic Genetic Study of Fear" (*Am. Jour.*

of Psych., April and July, 1914) advocates the study of phobias from the mental side. In an "Experimental Study of Stuttering" (*ibid.*, July, 1914), J. M. Fletcher asserts that stuttering is essentially a mental phenomenon and a specifically psychological problem. F. L. Wells in an interesting paper, "The Systematic Observation of the Personality in Its Relation to the Hygiene of Mind" (*Psych. Rev.*, July, 1914), emphasizes the social aspect of characterology.

Educational Psychology.—About a third of the experimental contributions to this subject are concerned with problems in the psychology of learning. The interest continues in practice curves and the best distribution of time and length of periods, transference of training and memory. The present tendency seems to be toward the testing of former laboratory findings upon large groups of children in the schools. A number of examples of such work are to be found in the current numbers of the *Journal of Educational Psychology*. An equal amount of attention has been given to the psychology and practical pedagogy of the common-school subjects. Some have been analytical, such as "Some Aspects of Teaching Modern Languages" by G. Stanley Hall (*Ped. Seminary*, June, 1914); for the most part, however, they have been concerned with determining and defining standards of work according to age and grade of pupils. A large number of articles have appeared upon the subject of mental tests, most of which are concerned with a modification of the Binet scale. The problems of units and standards of measurement seem to be the most important topics of discussion during the year and have occupied much space not only in the journals but also on the programmes of congresses. The most important book of the year is the third volume of E. L. Thorndike's *Educational Psychology* on "Mental Work and Fatigue and Individual Differences and their Causes."

Applied Psychology.—Large business enterprises are showing an increasing interest in psychological methods and principles. This year several firms have added psychologists to their staff. Thus far psychology has been of most use to the science of advertising. E. K. Strong has published an article on "The Effect of Size of Advertisements and Frequency of Their Presentation" (*Psych. Rev.*, March, 1914). H. C. McComas has made a report on "Some Tests of Efficiency in Telephone Operators" (*Jour. of Philos., Psych., and Scientific Methods*, May 11, 1914). The last third of H. Münsterberg's *Psychology* is devoted to a description of past work and a sketch of future possibilities in this branch of psychology.

Animal Psychology.—The progress in the study of animal behavior during the year has been principally in four directions. 1. There has been much interest in the investigation of sensory factors. The important contributions to this subject by J. B. Watson and his associates, are to be found in the former's book on *Behavior* (mentioned above), which is a most valuable contribution to animal psychology. The color and auditory sensations of birds and animals have been carefully investigated, for example, E. F. Tugman's work on "Light Discrimination in the English Sparrow" (*Jour. of Animal Behavior*, March-April, 1914). An important method for measuring the acuity of light and pattern vision has been described by H. M. Johnson (*ibid.*, Sept.-Oct., 1914). 2. To the subject of habit formation has been contributed a paper by G. C. Basset, who found that "a less than normal brain weight in a strain of rats is accompanied by a less than normal ability to form habits" (*Behavior Monogr.*, ii, no. 4, 1914). Several important improvements have been made in the method of investigating habit formation. R. M. Yerkes and C. E. Kellogg have described "A Graphic Method of Recording Maze-Reactions" (*Jour. of Animal Behavior*, Jan.-Feb., 1914), and J. B. Watson has described a similar device (*ibid.*). 3. Much knowledge has been gained from a systematic study of instincts. G. V. Hamilton's "A Study of Sexual Tendencies in Monkeys and Baboons" (*ibid.*, Sept.-Oct., 1914) is important not only for its contribution of facts, but also for the possibilities of research which it suggests. 4. The fourth direction of progress is in the study of imaginal and idea-

tional processes. A new method called the "delayed-reaction method" has been developed for this purpose at the University of Chicago. Within the same field, R. M. Yerkes has developed a multiple-choice method (*Science*, xxxix, 625). This is to provide for the comparative study of ideational and allied types of behavior in man and other animals, of developmental conditions and of pathological variations.

PHILOSOPHY

RALPH BARTON PERRY

General Philosophy.—The philosophical thought of English-speaking countries exhibits three fairly well defined and divergent tendencies. The older idealism and Hegelianism appears in the work of Bradley, Bosanquet, Muirhead, Mackenzie, and McTaggart in England, and in America in that of Royce, Bakewell, Hocking and the members of the Cornell school steadily recruited from the pupils of Creighton and Albee. The second tendency may be called pragmatism, instrumentalism or Bergsonism, according as the emphasis is put upon the influence of James, Dewey, or Bergson. This general movement is represented in England by Schiller, Knox and Carr; in this country by Dewey, A. W. Moore, Stuart, Bode, Woodbridge, H. C. Brown, Kallen and others. The third tendency, realism, is represented by Russell, G. E. Moore, Alexander and Nunn in England, and in this country by such men as Montague, Holt, Marvin, Pitkin, Spaulding, Perry, Cohen, and Sheffer. Realism has undoubtedly been most prominent during the year, and it will therefore be treated first.

The Concept of Consciousness, by E. B. Holt (Macmillan), is undoubtedly the most important book of the year among American philosophers. It is the first systematic treatise representing the American "neo-realism." It defends the fundamental thesis of realism, that of the independence of reality on consciousness, develops a very original and important doctrine of consciousness, especially suited to serve as a foundation for a scientific psychology, and is distinguished by the rigor and nicety of its logical technic (see also *Psychology, supra*). Next in importance to this book is the American visit of Hon. Bertrand Russell. In addition to giving regular instruction at Harvard during the second half-year, he gave a course of public lectures before the Lowell Institute in Boston, and a number of single lectures at universities of the East and Middle West. The Lowell Lectures have been published under the title of *Our Knowledge of the External World* (Open Court Publishing Co.). The book has great interest and importance as perhaps the first public and popular presentation of the results of the new symbolic or mathematical logic. It is at the same time a plea for a new scientific philosophy, that shall abandon the more ultimate metaphysical questions and confine itself to a field where more certain, albeit less pretentious, results can be obtained. Logic of the more recent and technical sort will be the essence of this philosophy, and its most promising extension, at least for the present, will be the analysis of the so-called "external world" as this is described by the science of physics. In addition to its realism, its stress on logic, and other features already familiar to students of Mr. Russell's work, the most characteristic note in this book is its positivism, that is, its effort to simplify and avoid the speculative and dogmatic excess of which common sense as well as the older philosophies have been guilty. A more elaborate study of "The Relation of Sense-Data to Physics," containing a reduction of space, time, matter, things, and other physical conceptions to the simplest possible terms of experience, was published by Mr. Russell in *Scientia* in July. Some of the subject-matter of his Harvard courses has been published in a series of articles entitled "The Nature of Acquaintance" (*Monist*, Jan., April and July, 1914). In these articles he defends the cognitive value of immediate presentation. He also pays his respects to William James and to the American realists, criticizing the so-called "relational theory" of consciousness,

and insisting against the "neutral monists" upon the necessity of supposing a distinctly mental element or act.

The interest in Mr. Russell's work has called forth a considerable amount of discussion and criticism. The Western Philosophical Association devoted one of its sessions to a discussion of "The Neo-realistic Doctrine of Relations" in which the "internal" and "external" theories were opposed and disputed. Among the published criticisms of the realistic or external theory, the following should be mentioned: "Isolated Knowledge," by A. W. Moore (*Jour. of Philos.*, July 16, 1914); "Transcendentalism and the Externality of Relations," by G. A. Tawney (*ibid.*, July 30, 1914); "The Externality of Relations," by E. H. Hollands (*ibid.*, Aug. 13, 1914). An important contribution to the literature of realism is S. Alexander's "The Basis of Realism," delivered before the British Academy on Jan. 28, and since published in the Academy's *Proceedings*. The author develops the thesis of the object's independence of the mind, and argues that this does not diminish the dignity of mind, but rather enhances it, mind being a comparatively late and a comparatively perfect development. This is the place to mention also the presidential address of E. B. McGilvary, delivered before the American Philosophical Association in December, 1913 (*Philos. Rev.*, March, 1914). The address was entitled "Time and the Experience of Time," and contains interesting comments on the views of Bergson and James, together with an attempted solution of the traditional paradoxes.

The writings of Russell and Holt, and of realists generally, represent a special emphasis upon the study of perception. The philosophy of the day is peculiarly empirical, and attaches great importance to the part played in knowledge by the senses. Hence the questions concerning the data of sense, the aberrations and relativities of sense, and the connection of sensation with the physical stimulus and the organism, are all in the foreground of discussion. A valuable summary and introduction to these problems are afforded by M. T. McClure's "An Orientation to the Study of Perception" (*Jour. of Philos.*, Jan. 1, 1914). "Relativity, Reality and Contradiction," by A. O. Lovejoy (*ibid.*, July 30, 1914) is a characteristically acute and controversial defense of the subjectivity of the secondary qualities, such as color, sound, etc. H. B. Alexander has written an interesting and original paper on "The Perception of Motion" (*ibid.*, May 31, 1914).

There are signs of a considerable revival of interest in pragmatism and allied tendencies. W. Caldwell's *Pragmatism and Idealism* (Adam and Charles Black) is a clearly written survey and criticism of the movement. W. Fite has written two acute papers in which he has attempted to solve the underlying problem which he believes partially justifies pragmatism. The first of these papers is entitled "Pragmatism and Science" (*Philos. Rev.*, July, 1914); the second, "Pragmatism and Truth" (*ibid.*, Sept., 1914) develops the thesis that facts are independent, but "responsive" to human needs. This view is designed to save what is good in both pragmatism and realism. The useful and attractive series of "Philosophies, Ancient and Modern" (Dodge Publishing Co.), has added to its list *Pragmatism*, by D. L. Murray, and *William James*, by H. V. Knox, one-sided and inadequate but well written handbooks calculated to popularize this movement. Meanwhile the interest in Bergson continues unabated. Mr. Russell's effective criticism has been republished in Cambridge (*The Philosophy of Bergson*, Bowes and Bowes), together with a reply by H. W. Carr and a counter-reply by the author. An acute answer to the same paper has been written by Miss K. Costelloe (*Monist*, Jan., 1914). The Bergsonian interpretation of life is treated by J. W. Scott in "The Ethical Pessimism of Bergson" (*Mind*, July, 1913). A more important and very suggestive discussion of the matter is to be found in two lectures entitled "Bergson and Romantic Evolutionism," delivered by A. O. Lovejoy before the Philosophical Union of the University of California, and since published in the *University of California Chronicle* (xv, no. 4). These lectures relate Bergson's religious views to Darwinism, and show that their real importance lies in their emphasis upon the temporal or

developmental nature of God. At the same time the author brings clearly to light a profound ambiguity or duality in the Bergsonian view. For Bergson's notion of the indivisible unity of time points to a monistic absolutism that does not harmonize with the importance that he attaches to natural evolution. The universal life tends to concentrate into a metaphysical point, in which all differences, including that between earlier and later in the stream of time, are lost. H. M. Kallen in an article entitled "James, Bergson, and Traditional Metaphysics" (*Mind*, April, 1913) makes the same point in showing a deep divergence between Bergson and James. Bergson, this writer thinks, is at bottom an old-fashioned absolutist, resembling Plato and Spinoza; whereas James with his emphasis upon the empirical ultimateness of differences and relations retains to the end, despite a partial coincidence with Bergson's philosophy, a diversified and pluralistic world. It is only fair to say that discussions of Bergson's philosophy of religion are somewhat hypothetical and premature. He has not yet expressed himself on the subject with any finality, and further criticism should be suspended at least until his Gifford Lectures are available. The first of these, "The Human Personality," was given at Edinburgh, April 21.

The most important idealistic publication during the year was F. H. Bradley's *Essays on Truth and Reality* (Clarendon Press). The volume contains articles written during the last five or six years, chiefly for *Mind*. These essays are important for the light they throw on the attitude of the traditional and once authoritative philosophy toward the newer work of James, Dewey and Russell. An event of general importance in the philosophical world was the death in 1912 of Henri Poincaré (*A. Y. B.*, 1912, p. 596); his *Science and Method* has been published in English (trans. by F. Maitland, Thos. Nelson & Sons) with an introduction by B. Russell, who expresses the opinion that the work of Poincaré constitutes the best existing treatment of science for philosophers. A somewhat isolated but not the less important piece of philosophical work is the series of articles entitled "A Definition of Causation," by W. H. Sheldon (*Jour. of Philos.*, April 9, May 7, June 4, July 2, 1914). The topic is approached by an examination of the actual instances of causation afforded by science, and the author concludes that the notion may be reduced to the relation of self-repetition.

Ethics.—The American Philosophical Association devoted two of its sessions in December, 1913, to a discussion of the topic of "Value." The two leading papers in this discussion were "An Empirical Definition of Value," by W. H. Sheldon (*Jour. of Philos.*, Feb. 26, 1914), a study of instances; and "The Definition of Value," by R. B. Perry (*ibid.*, March 12, 1914), a classification and criticism of doctrines. The Conference on Ethics and Jurisprudence, meeting in Chicago, April 10 and 11, discussed "Natural Rights" and "The Relation of Rule and Discretion." A very important book on psychological aspects of ethical inquiry is A. T. Shands' *The Foundations of Character* (Macmillan).

History of Philosophy.—F. Thilly (*History of Philosophy*, Holt) has written a textbook in the outlines of the history of philosophy. B. Rand has edited *Shaftesbury's Second Characters* (Cambridge University Press), and G. T. Whitney and P. H. Fogel have prepared *An Introduction to Kant's Critical Philosophy* (Macmillan) for beginning students. J. Burnet's *Greek Philosophy:* Part I, *Thales to Plato* (Macmillan), is the first of an important series. The 700th anniversary of the birth of Roger Bacon was celebrated at Oxford on June 10. A volume is in preparation, containing essays by experts on the various aspects of Bacon's work.

Logic.—The most important work in this field is the continuation of the monumental *Principia Mathematica*, by A. N. Whitehead and B. Russell. In the later volumes of this work (Cambridge University Press) special attention is given to the extension of symbolic logic to the field of physics. A work so comprehensive and at the same time so rigorous and difficult will require time for its assimilation, but it has already called forth significant short articles by H. M. Sheffer, C. I. Lewis, N. Wiener and others.

XXVIII. THE MEDICAL SCIENCES

ANATOMY

G. Carl Huber

General Survey of Progress.—Worthy of special note in the general progress of anatomy in America during the year 1914 are the organization and subsidization by the Carnegie Institute at Washington, of a department of research in embryology, located at Baltimore, under the direction of Franklin P. Mall, with whom are enlisted in this service four research associates. The recognition of embryology as a special department of research is most encouraging. In an organized Institute of this nature extended problems, the investigation of which needs access to abundant material and ample time, may be undertaken with promise of results which cannot help but further anatomic science.

Of textbooks, special mention may be made of the thorough revision of the Stöhr-Lewis *Textbook of Histology* (Blakiston) by F. T. Lewis. In this revision special consideration was given to histogenesis and the embryonic interpretation of adult structures.

Cytology.—In a series of investigations on the *intra vitam* action of benzidine dyes by H. M. Evans and associates (summarized in *Science*, 1914) it is shown that two types of cells respond readily to vital staining, (1) clasmatocytes of the connective tissue, and (2) endothelial cells of the liver, spleen, bone marrow, and lymph glands. Less readily stained were the fixed connective tissue cells and mesothelial cells. Emmel (*Am. Jour. Anat.*, xvi) reports an investigation on red blood cells in pig embryos ranging in length from 3 mm. to about 40 mm. In autoplastic cultures it was observed that there occurred a constriction of the cytoplasm which resulted in the separation of a non-nucleated hemoglobin containing corpuscle and a nucleated structure, a process which seems normal in circulating blood. Swift (*ibid.*, xv) has considered the question of the origin of the germ cells in chick embryos, and has shown that they may be recognized early by their size, nuclear structure, large attraction sphere and yolk content. They have origin in a specialized region of the germ-wall entoderm anterior and lateral to the embryo and primitive streak. With the formation of the mesoderm and vessels, they enter the blood stream until the embryo reaches the 20-somite stage, after which they wander to the splanchnic mesoderm and from thence to the germinal epithelium. Cowdry (*ibid.*) reports on the developmental relation between mitochondria and neurofibrils as observed in the central nervous system of chick embryos in sections of homologous regions in closely graded stages, stained after several approved methods. As a result of painstaking study, the conclusion is reached that there is no evidence that mitochondria are transformed into neurofibrils. (See also XXV, *Zoology.*)

Growth and Development.—Stockard (*Anat. Rec.*, viii) reports on defects in development in response to treatment of ova with chemical substances. Hen's eggs, treated prior to incubation with fumes of alcohol and ether, were especially studied with reference to developmental changes. The general conclusion is reached that the effect of chemical substances is not specific, certain specific responses

being obtained by a variety of chemical substances. Gudernatsch (*Am. Jour. Anat.*, xv) reports a long series of experiments on the feeding of thyroid and thymus gland substance to tadpoles. It was found that the thyroid substance has the power to excite differentiation irrespective of the size of the tadpole but lacks the power to cause growth, while thymus substance has the power to stimulate growth but lacks the power of exciting differentiation. Hatai (*ibid.*, xvi) found that the growth curve of the thymus gland in the albino rat is correlated with age rather than with body weight. Scott (*Anat. Rec.*, viii) finds that there is no decrease in the percentage of water in the brain of the smooth dogfish with increasing age. Kearney (*ibid.*) as a result of investigation of the relative growth of the organs of the dogfish finds that their relative growth is very similar to that which has been observed among higher vertebrates, including mammals and man. Chichester (*ibid.*) adds a number of cases of cyclopia in mammalia. In his study, special attention is given to abnormalities observed in the nervous system in such malformations. Macklin (*Am. Jour. Anat.*, xvi) reports on a very careful study of the skull of a 40-mm. human embryo in which use of the Born wax-plate method was made. Studies of this nature are of interest in determining the philogeny of the human skull. The chondro-cranium is presented in excellent figures made from reconstructions. Several new cartilaginous anlagen are described and discussed in their relation to other parts.

Internal Organs.—Bensley (*Anat. Rec.*, viii) reports on an investigation of the thyroid of the opossum, describing a new type of cell with new secretory products, furnishing objective evidence of the polyvalency of thyroid secretion. Wulzen (*ibid.*) describes a more or less definite cone-shaped structure found in connection with the pars intermedia of the hypophysis of the ox, resembling in structure the pars glandularis and possessing numerous acidophile cells, however, having smaller alveoli and finer connective tissue septa. Bardeen (*Amer. Jour. Anat.*, xvi) has studied the development of the intestine with a view of determining at what period in its development variations from the norm are most likely to appear. He finds that the critical period is that which immediately precedes and accompanies the return of the umbilical loop to the abdominal cavity, when the embryo is growing from 20 mm. to 50 mm. in length. Kingsbury (*ibid.*) reports on an investigation of the interstitial cells of the mammalian ovary. The study is confined to the ovary of the cat, including late-fœtal to old-age stages. He concludes that the interstitial cells are modified stroma cells. No evidence was found to support the view that they constitute morphologically an intraovarian gland having an internal secretion. F. P. Johnson (*ibid.*) contributes the third of a series of papers on the development of the mucosa of the digestive tract, considering in this the development of the rectum. Numerous reconstructions were made. Corner (*ibid.*) reports on the development of the structural unit of the pig's pancreas; a structural unit being defined as the smallest portion of an organ which is repeated in a similar way throughout and contains all the elemental structures of the organ. The duct system was found to differentiate from a primitive plexus of capillary ducts. Some 20,000 to 30,000 structural units are differentiated.

Blood and Lymph Vascular Systems.—The important question of the development of the blood-vascular and lymphatic systems has been considered in a number of monographic contributions in which two schools holding divergent views have contributed. Florence R. Sabin (Johns Hopkins Hosp. Reports, *Monographs*, N. S., v; and *Ergebn. Anat.*, xxi), who has contributed largely to the view that the vertebrate lymphatic system is a direct derivative of the embryonic venous system, the centrifugal theory of lymphatic development and the specificity of the endothelium, presents a very complete and critical review of the literature bearing on the subject, and summarizes and brings to date her own contributions in this field. Huntington (*Am. Jour. Anat.*, xvi), who has contributed largely to

the centripetal theory of lymphatic development, according to which lymphatic vessels are formed as a result of successive fusion of intercellular mesenchymal spaces, presents new evidence in support of his view. A hæmophoric stage is recognized, in which newly developed blood cells which arise *in situ* in the mesenchymal syncytium are conveyed by lymphatics to the embryonic venous system. Schulte (*Memoirs of the Wistar Institute*, No. 3) considers especially vasculogenesis. The question of the specificity of the angioblast and endothelium is considered at length and the general conclusion reached that endothelium is not a specific tissue, but may develop from mesenchyme, and may again revert to mesenchyme. His own contribution deals with the early formation of the blood vessels in the cat and especially the umbilical vein. This he contends is formed directly from the mesenchyme as a result of concrescence of discrete spaces. Bremer (*Am. Jour. Anat.*, xvi) has contributed to our knowledge of the earliest blood vessels in man. From a study of very young human embryos of the Harvard and other collections, he has discovered that the earliest blood vessels arise separately, and by many anlagen in the yolk sac and body stalk. The anlagen in the body stalk arise as funnel-shaped ingrowths of the mesothelium which become in part detached. From these mesothelial ingrowths, by extension and delamination angioblast cords and endothelium are formed. Miller and McWhorter (*Anat. Rec.*, viii) report on experiments on blood-vessel development in the blastoderm of chick embryos. By removing on one side the area opaqua, at the head-process stage, and observing further development, it was found that blood-vessel anlagen developed *in situ* in the area pellucida and embryo on the operated side. Hopkins (*ibid.*) has studied by means of injection methods the development of the blood vessels of the spinal cord. He finds that the earliest vessels arise from segmental spinal branches, and that the dorsal rami of the primitive arterial tract and other capillaries enter the cord and form an undifferentiated capillary plexus which later differentiates into arteries and veins. Weed and Wegefarth (*Jour. Med. Research*, xxxi) have contributed the results of an extensive investigation on the formation and absorption of the cerebrospinal fluid and the aqueous humor of the eye. Evidence seems conclusive that the cerebrospinal fluid is secreted by cells of the choroid plexus, reaches the subarachnoid space and is absorbed through the agency of arachnoidal villi, structures which the investigation has brought to light. Kramer and Todd (*Anat. Rec.*, viii) have studied the distribution of the nerves to the arteries of the upper extremity and have found that the subclavian and axillary arteries receive nerve supply direct from the sympathetic chain, all other arm arteries indirectly through the spinal nerves. A. W. Meyer (*Am. Jour. Anat.*, xvi), in an extensive study of the retrogressive changes in the fœtal vessels and suspensory ligament of the liver, finds that these are fœtal structures and degenerate early in life. Schaeffer (*Jour. Exp. Med.*, xix) has presented results of a study on the behavior of elastic tissue in post-fœtal occlusion and obliteration of the ductus arteriosus, finding that the elastic fibers, which are an important factor in the occlusion of the lumen of the duct, are formed by delamination from the hypertrophied internal elastic membrane. Jordan (*Anat. Rec.*, viii) from a study of heart muscle by dissociation methods reaches the conclusion that there is no evidence in favor of the cellular conception of heart muscle, which appears to be a true syncytium.

Nervous System.—Weed (Carnegie Inst. of Washington, Publ. No. 191) presents the results of extended studies of the nuclear masses of the lower portion of the human brain stem. The nuclear masses of this region were reproduced in plastic form by the plate method of reconstruction. In the model thus obtained, the form and relations of the various nuclear masses are clearly portrayed. In the figures of the model, which accompany this monograph, the various nuclear masses are clearly brought to view by use of distinctive colors. These figures will be of great service to other investigators in interpreting

ross sections of the brain stem. Malone (Johns Hopkins Hosp. Reports, *Monographs*, N. S., vi) contributes the results of a study of the pars optica hypothalami in complete series of sections of this region stained after the Nissl method, in man, several monkeys, and the cat. In these series it was possible to differentiate several groups of nerve cells showing characteristic reactions to the stain, permitting thus a more definite designation of the ganglionic masses of this region than has been done before. In the ganglion opticum basale in all the forms studied the Nissl substance is densely massed at the periphery of the cells in large irregular masses, while the cells of the nuclei tuberis lateralis contain a very small amount of Nissl substance in the form of very fine granules. Ranson (*Am. Jour. Anat.*, xvi) reports on a study of Lissauer's tract in the spinal cord of a number of mammals, including man, in tissue stained by the pyridine-silver method. It is shown that the great majority of the nerve fibers of this tract are of the nonmedullated type. It is tentatively suggested that Lissauer's tract with the substantia gelatinosa forms an apparatus for the conduction of pain and temperature sensations. Chase and Ranson (*ibid.*) have traced in material stained after the pyridine-silver method the distribution of various types of nerve fibers found in the vagus complex, thus contributing largely to a correct understanding of the origin of the several branches of the nerve. Ingalls (*Jour. Comp. Neur.*, xxiv) has contributed a study of the parietal region of the primate brain, in which the cortical areas and fissures are homologized in a progressive series of types. Herrick (*ibid.*) has contributed two extensive studies on the amphibian brain. One deals with the medulla of the larval amblystoma, in which he discusses the distribution of the sensory root fibers, showing that they extend in ascending and descending directions through the greater part of the medulla, the sensory tracts and the motor nuclei and tracts. The other paper deals with the cerebellum of urodele amphibia. It is shown that these types conform to the general scheme of cerebellar organization as set forth by Edinger. This author has also given an excellent summary (Wood's *Reference Handbook*, iii) of recent studies on the components of the cranial nerves and on nerve terminations. Coghill, who has in a series of studies endeavored to ascertain the relations of behavior to the process of growth and differentiation throughout the nervous system, in a recent paper (*Jour. Comp. Neur.*, xxiv) deals with the sensory system of the trunk in its relation to the behavior of embryo amblystoma up to the swimming stage. It was found that Rohon-Beard cells and their processes constitute the sensory columns of the cord, the axones being directed cephalad. The peripheral processes of these cells were found to terminate both in the skin and the myotome, so that they possess a muscle-sensory and skin-sensory function. Sutherland Simpson (*Quart. Jour. Physiol.*, viii, and *Anat. Rec.*, viii) presents further studies on the pyramidal or motor paths of the brain stem and spinal cord. In the porcupine there were found in the spinal cord four pyramidal paths; in the squirrel and chipmunk complete decussation is observed with the formation of a dorsal pyramidal path. Brookover (*Jour. Comp. Neur.*, xxiv) has traced in Lepidosteus embryos the ganglion cells of the nervus terminalis to their origin from the olfactory placodes. He has also described the nervus terminalis in the human brain. J. B. Johnston (*Anat. Rec.*, viii) has also identified the nervus terminalis in man and certain of the larger mammals, tracing mainly its intracranial portion. The presence of both efferent and afferent fibers is suggested. Kuntz (*Jour. Comp. Neur.*, xxiv) records observations on the origin of the cranial sympathetic ganglia in representatives of the several classes of vertebrates, concluding that the cranial sympathetic ganglia are in mode of development similar to the ganglia of other parts of the sympathetic system, the nerve elements having origin from the wall of the neural tube and the sensory ganglion anlagen, advancing peripherally along the motor and sensory roots. Carpenter and Conel (*ibid.*) report on a

study of the cells of sympathetic ganglia with special reference to the presence of intrinsic sensory neurones, having found that when studied with silver impregnation methods, on the basis of form, two types of cells may be said to exist. In sections of ganglia stained after the Nissl method, all cells present a structural similarity, thus must be all of the motor type. Elbert Clark (*ibid.*) reports on observations made on the degeneration of medullated nerve fibers in the chicken after prolonged feeding with polished rice, with regeneration after a return to an adequate nutritive diet. During the degeneration process some 10 to 20 per cent. of the nerve fibers in certain of the nerve trunks presented a fragmentation of the myelin and axis cylinder with no perceptible increase of the sheath cells and no formation of embryonic fibers. Regeneration is obtained by downgrowth of the axis cylinder within the old sheath.

PHYSIOLOGY AND PHARMACOLOGY

S. J. Meltzer

Gastro-Intestinal Canal.—In numerous articles Carlson, with his pupils, has continued to study the contractions of the stomach in a state of hunger (*A. Y. B.*, 1913, p. 713). Numerous instructive facts were brought to light. Carlson (*Am. Jour. Physiol.*, xxxii, 369) found that sight or smell of food, pleasure, anger, etc., cause a psychic reflex inhibition of the gastric hunger contractions which become greatly diminished when both splanchnic nerves are cut. Sleep does not affect the contractions. Cutting of both vagi causes a diminished tonus. Cutting of both vagus and both splanchnic nerves does not abolish the hunger contractions. The latter have apparently their origin in the gastric wall, the extrinsic nerves having only a modifying and regulating influence.—Carlson (*ibid.*, xxxii, 388) found that in previous experiments on a human being the introduction into the stomach of weak acid, alkalies, beverages, etc., caused an inhibition of the hunger contractions. It seemed then probable that these inhibitions were of reflex origin from the mucosa of the stomach and not psychical in nature. This was now proven by the fact that these inhibitions could be obtained by bringing the substances through a fistula into the stomach of dogs. They were obtained even after sectioning the vagi and the splanchnics. The inhibition therefore is a local reflex from the mucosa of the stomach.—Carlson (*ibid.*, xxxii, 399) found that in tetany the tonus and the hunger contractions of the stomach are depressed, which is explained by an increased irritability of the inhibitory nerve endings in the stomach.—Carlson (*ibid.*, xxxiii, 95) and one of his assistants fasted for five days. The hunger contractions became gradually stronger; they were stronger in the night than during the day. The *sensation* of hunger became less after the third day. In fasting dogs the hunger contractions behaved as in fasting men.—Carlson, Orr and McGrath (*ibid.*, xxxiii, 119) found that the hunger contractions take place also in the fundus of the stomach when separated from the antrum according to Pawlow's method. When the connection between the two stomachs was very narrow the contractions in both parts ran independently of each other.—Carlson and Luckhardt (*ibid.*, xxxiii, 126) found that the esophagus in man does not contract during the hunger contractions except when the latter are very strong. The tonus of the cardia is increased during the hunger contractions and when the latter are strong the cardia contracts rhythmically. Tetanic contractions of the esophagus cause an inhibition of the hunger contractions of the stomach.—Carlson and Lewis (*ibia*, xxiv, 149) found that smoking inhibits the hunger contractions of the stomach; "strong" cigars may completely inhibit even strong contractions; the inhibition may continue from five to fifteen minutes after the stimulation. Pressure on the abdomen (constriction of the belt) inhibits only mild hunger contractions and even these reappear despite the continuous pres-

sure of the belt. In dogs with cut splanchnic nerves pressure causes no inhibition.—Carlson (*ibid.*, xxxiv, 155) found also that moderate muscular activity has no effect upon the hunger contractions, intense activity inhibits them. Strong stimulation of the cutaneous nerves by cold or heat inhibits the hunger contractions; there is a distinct increase in the gastric tonus and hunger contractions as an after-effect of prolonged and intense stimulation of the cold nerve endings of the skin. Intellectual processes or emotional states cause inhibition of the gastric tonus and hunger contractions; sleep augments them.—According to Patterson (*ibid.*, xxxiii, 423) the hunger contractions decrease with the age of the animal.—Luckhardt (*ibid.*, xxxiii, 313) found that in depancreatized dogs the hunger contractions increase with the progress of the diabetic condition of the animal, and is of the opinion that the phenomenon of polyphagia which is a frequent symptom in severe diabetes is due to the increase of the hunger contractions.

Alvarez (*ibid.*, xxxv, 177) studied the beating in warm oxygenated Ringer's solution of segments of the rabbit's intestine (Magnus) and found that parts taken from the duodenum have a greater tone and beat more rapidly but with a smaller amplitude than parts from the lower ileum.—Cannon and Burket (*ibid.*, xxxii, 347) studied the endurance of anemia by nerve cells in the myenteric plexus. Parts of the gastro-intestinal canal were firmly isolated by tying, and the supplying blood vessels were ligated; the normal activities returned even after an isolation lasting seven hours, when the parts were released. When a part of the intestine was firmly compressed between two glass plates the motility was lost after three hours and the nerve cells were found degenerated. Apparently the nerve cells of the myenteric plexus are the most resistant nerve cells in the body.

Circulation.—According to Martin and Lacey (*ibid.*, xxxiii, 212) a very weak, threshold stimulus of any sensory nerve causes invariably a fall in blood pressure. The threshold stimulus which causes a pressor effect has to be 15 or 20 times stronger. The authors consider therefore the production of a fall in blood pressure as the physiological effect of a stimulation of sensory nerves.—The fall of blood pressure caused by stimulation of the depressor nerve in rabbits may be due partly to a lowering of the tonus of the vaso-constrictor center and partly to a reflex vaso-dilatation. In cats the depressor fibers are present in the vagus nerves. Martin and Stiles (*ibid.*, xxxiv, 106) stimulated the central end of a vagus nerve in cats with stimuli of various intensity and found that the fall of blood pressure caused by the various stimuli presents two types: at first all stimuli of ascending intensities cause a moderate fall of nearly the same extent; then abruptly the next stronger stimulus begins to produce a much stronger fall which, however, again increases very little in extent with further increases in intensity of the stimuli. The authors believe that one type of depression is due to reflex dilatation and the other type is brought about by a depression of the tonus of the vasomotor center.—The vasomotor center acts normally even in the last stages of diphtheria intoxication (Porter and Pratt, *ibid.*, xxxiii, 431) and of experimental pneumonia (Porter and Newburgh, *ibid.*, xxxv, 1).—According to Pilcher and Sollmann (*ibid.*, xxxv, 59) a hemorrhage amounting to 25 c.c. per kilo dog causes a stimulation of the vasomotor center; a loss greater than that but not exceeding 35 c.c. per kilo causes depression which, however, can be restored by transfusion with blood or normal saline. Loss of blood amounting to more than 35 or 40 c.c. per kilo causes paralysis of the center (shock) which can not be restored by transfusion.—The venous pressure in man exhibits, according to Hooker (*ibid.*, xxxv, 73), a distinct diurnal rhythm, rising throughout the day from 10 cm. to 20 cm. of water.—Schneider and Sisco (*ibid.*, xxxiv, 1, 20) studied the circulation in man in Colorado Springs, altitude 6,000 ft., and on Pike's Peak, altitude 14,149 ft. Pulse rate increases only several days after arrival, arterial blood pressure is little changed, venous pressure is lowered and the velocity

of the blood is accelerated. Inhalation of oxygen retards the heart beat and diminishes the blood flow. The authors conclude that the changes in the circulation at high altitude (mountain sickness) are due to oxygen want.—According to Bartlett, Corper and Long (*ibid.*, xxxv, 36) the blood flowing into the portal vein from each of the smaller veins of the portal system does not blend diffusely into a common current. The lobes of the liver are greatly independent of one another; blood from the stomach, spleen, duodenum, first part of the jejunum and the rectum flows mainly to the left lobes; blood from jejunum, ileum and first part of the colon flows principally into the right lobes.

It is known that muscular exertion accelerates the heart beats. Peterson and Gasser (*ibid.*, xxxiii, 301), using Langendorff's method, perfused cats' hearts with extracts of tetanized cats' muscle and found that only the size of beats was affected but not their rate. They conclude that the metabolic products play no part in the increase in heart rate resulting from muscular activity.—Gasser and Meek (*ibid.*, xxxiv, 48) found that the acceleration of the heart beat sets in too soon after the beginning of the muscular exercise to be due to anything else than to a nervous influence. The acceleration persists even after the removal of the accelerating mechanism (stellate ganglion) but disappears after exclusion of the vagi. They conclude that acceleration of the heart beat after exercise is due to an inhibition of the tonus in the medulla of the vagus centers.—Mansfeld assumed that the acceleration of the heart after exercise may be due to an increase of the temperature in the blood. Martin, Gruber and Lanman (*ibid.*, xxxv, 224) made careful comparisons of temperature and pulse rate after muscular exercise in trained and untrained men and failed to establish any degree of parallelism between the two phenomena, which is to be expected, if Mansfeld's view is correct.

According to Meek and Eyster (*ibid.*, xxxiv, 368) the greatest automaticity, which is the pace-maker for the heart, is located in the upper part of the sino-auricular node. If this part is depressed by cold or weak stimuli of the vagus, the pace-making function migrates to the lower parts of that node. If the entire node is depressed the pace-making shifts to the auriculo-ventricular node. With the migration of the pace-making to lower parts the heart beats become slower.—Garrey (*ibid.*, xxxiii, 397) found that narrow strips cut from fibrillating hearts stop their fibrillation. He brings this in connection with the known fact that small hearts fibrillate less readily or stop their fibrillation sooner than large ones.—The sino-auricular node is located at the mouth of the superior vena cava and the auriculo-ventricular node is located at the mouth of the coronary orifice. According to Mackenzie, both are homologous tissues, the first being the right-handed and the second the left-handed remnant tissue which, in the lower vertebrate heart, surrounds the sino-auricular orifice. The sino-auricular node is the site of normal impulse formation and the auriculo-ventricular is the upper end of conducting system. Cohn and Lewis (*Jour. Exper. Med.*, xviii, 739) found that the right vagus influences predominantly the formation of impulses, while the left vagus influences predominantly the conduction of impulses.

Blood Clotting.—Cannon and Mendenhall (*Am. Jour. Physiol.*, xxxiv, 225) devised a graphic method for the study of the coagulation time of the blood.—By this method Cannon and Gray (*ibid.*, xxxiv, 232) studied the effect of adrenalin upon clotting. Intravenous injection of very small doses of adrenalin shortens the coagulation time. The duration of this effect is prolonged with the size of the dose. Very large doses, however, rather prolong the coagulation time. After removal of the liver and the intestines injection of adrena in exerts no effect upon the clotting. The authors assume that adrenalin affects blood clotting by some action upon the liver.—Cannon and Mendenhall (*ibid.*, xxxiv, 243) found that stimulation of a splanchnic nerve, with the corresponding adrenal intact, causes a shortening of the coagulation time. The stimulation, however, failed to

produce such an effect when the corresponding adrenal was previously removed. The authors assume therefore that the hastening of the clotting is produced by an action of the secretion of the adrenals (adrenin) upon the liver.—In previous investigations of Elliot and of Cannon it was shown that pain, anger and other emotional states cause an increase of adrenal secretion. In harmony with this is the finding of Cannon and Mendenhall (*ibid.*, xxxiv, 250) that the process of clotting of blood is hastened by pain and emotional excitement, provided that the splanchnic nerves are intact.

Howell (*ibid.*, xxxv, 143) studied under the ultra-microscope the formation of fibrin when solutions of thrombin are added to oxalated blood plasma (from man, dog, cat, horse, terrapin) or to solutions of fibrinogen. The fibrin formed is deposited not as a network but as separate well formed needles of crystalline appearance which are massed to produce a mesh. —Cramer and Pringle stated that centrifugalized plasma, after filtration through a Berkefeld filter, will not clot upon the addition of calcium chloride; from which they conclude that thrombokinase (thromboplastin, Howell) is not present in the circulating blood. Goddard (*ibid.*, xxxv, 333) divided the filtered oxalated plasma in three portions and found that the first portion indeed did not clot at all on addition of calcium chloride, and the intermediate portion clots with difficulty; however, the last portions of the filtrate clot quite promptly when calcium chloride is added. He explains these facts by the assumption that circulating blood contains thrombokinase which, however, passes through a Berkefeld filter with much greater difficulty than the fibrinogen or the prothrombin.—Whipple (*ibid.*, xxxiii, 50) found that fibrinogen in the blood of dogs varies considerably, between 0.8 and 0.2 per cent. in dogs, and between 0.3 and 0.6 per cent. in man. It is highest in pneumonia and septicemia. In acute injuries and in chronic disease of the liver it is greatly reduced. Destruction of the bone marrow has no effect. Ligation of the aorta and inferior vena cava leads to a great reduction of the fibrinogen content in a few hours; elimination of the liver, by means of an Eck's fistula and ligation of the hepatic artery, causes only a moderate reduction in the content of the fibrinogen. While the liver undoubtedly exerts a great influence upon the formation of fibrinogen, other abdominal organs also probably take part in it; perhaps the intestines.—Goodpasture (*ibid.*, xxxiii, 70) found that in dogs after bleeding, defibrination and perfusion of the defibrinated blood, the fibrinogen regenerates after one-half hour. After total extirpation of the intestines the fibrinogen regenerates after eight hours. He is of the opinion that the regeneration of fibrinogen depends upon the liver and the intestines.—Gray and Lunt (*ibid.*, xxxiv, 333) studied the coagulation time by the above mentioned method of Cannon and Mendenhall. Hemorrhage hastens clotting; it fails to do it after sub-diaphragmatic evisceration. Removal of the adrenals alone does affect perceptibly the action of hemorrhage. They believe that liver, intestines and adrenals together control the coagulation.

Glands of Internal Secretion.—Keeton (*ibid.*, xxxiii, 25) finds that after removal in dogs of the thyroid-parathyroid apparatus the secretion of gastric juice is lessened, presumably due to a smaller output of hydrogen ion by the cells, and the digestive power of the juice is markedly lowered, chiefly depending on a decrease of pepsin. Injections of calcium salts improve the secretory mechanism.—Stoland (*ibid.*, xxxiii, 283) finds that in parathyroid tetany the sugar tolerance is not changed, the fibrin content of the blood is increased, bile secretion is diminished, and pancreatin secretion is less than in normal dogs.—According to Hoskins and Wheelon (*ibid.*, xxxiv, 270) parathyroid destruction in dogs results in a marked increase of vasomotor irritability which concerns all components of the vasomotor mechanism: sympathetic cells, myoneural junctions and musculature.

Hoskins and Wheelon (*ibid.*, xxxiv, 172) found that within four to six hours after removal of both adrenal glands a characteristic weakness of

the skeletal including the respiratory muscles and also of the cardiac muscle prevails, while at the same time the blood pressure may remain near its initial height. Apparently a compensatory activity of the vasomotor system occurs. Vasomotor response to stimulation of sensory nerves and to injection of adrenalin persists and the reactions to nicotine are often even somewhat exaggerated. The animal dies after removal of the adrenals from cardiac asthenia and not from vasomotor impairment, and there is no evidence that the sympathetic system suffers primarily from adrenal extirpation, as is assumed by Elliott and others.—According to Nice, Rock and Courtright (*ibid.*, xxxiv, 326) small doses of adrenalin which cause a fall, and even moderately large doses which cause a rise, in blood pressure elicit an increase in the depth of respiration. Only excessive doses of adrenalin produce a marked shallowness of respiration. — Nice, Rock and Courtright studied also the effect of pituitary extract upon the respiration (*ibid.*, xxxv, 194). They found that in most cases the characteristic effect is an increase in the depth followed by shallowness and an increase in the rate. After a few injections of pituitrin, the respiratory mechanism becomes immune. The effect on the respiratory mechanism occurs synchronously with that on the circulatory system.—Hill and Simpson (*ibid.*, xxxv, 361) gave intramuscular injection of pituitrin to a nursing woman and found that in less than half a minute she felt that milk was coming in the breast, the quantity of milk became considerably increased and the milk was richer in fat than normal. The woman felt some colicky pains and the baby who took the breast later had loose stools. (See also *Medicine, infra.*)

According to Hoskins and Wheelon (*ibid.*, xxxv, 119) ovarian extirpation in dogs results within six to eight weeks in a marked augmentation in the vasomotor reaction to a standard dose of nicotine; the reaction to epinephrin is not similarly increased.—Wheelon (*ibid.*, xxxv, 283) reports that the removal of the testes in dogs is followed by a slight fall in blood pressure; the reactions of the latter to nicotine are constantly lowered. The irritability of the sympathetic system is lowered, which may explain the dispositional changes in castrated dogs. Testicular grafts are apt to restore the irritability to a normal condition.

Cerebrospinal Fluid. — Frazier and Peet (*ibid.*, xxxv, 268) produced acute hydrocephalus by plugging the fourth ventricle and studied the production and absorption of cerebrospinal fluid. They find that this fluid is secreted by the choroid plexus into the third ventricle, the lateral ventricles act merely as a receptacle. The cerebrospinal pressure is practically identical with the pressure in the venous sinus. The absorption of the fluid takes place largely by venous channels. Lymphatic absorption is roundabout, slow and relatively diminutive.—Weed (*Jour. Med. Research*, xxxi, 21, 51, 93), in extensive experimental studies of the subject, comes to the conclusions that cerebrospinal fluid appears to be derived from two sources, the choroid plexus in the cerebral ventricles and the perivascular system of the nervous tissues, and that the return of the fluid to the general circulation occurs chiefly by a process of filtration through the arachnoid villi into the great sinuses, and in a minor degree by drainage of the fluid into the lymphatic system. There is no evidence of the escape of the cerebrospinal fluid into the cerebral veins or blood capillaries. The absorption of the fluid from the cranial subarachnoid space is much more rapid and much greater in amount than from the spinal portion.—In studies by Wegefarth (*ibid.*, 119, 149) and by Wegefarth and Weed (*ibid.*, 167) of the mechanism of the intra-ocular fluid, it was established that all the processes concerned with the cerebrospinal fluid and those with the aqueous humor (secretion, course of the fluid, the ultimate return to the major circulation) are strikingly analogous.

Diverse Subjects.—Abel, Rowntree and Turner (*Jour. Pharm. and Exper. Therap.*, v, 275 and 611) devised an apparatus by which diffusible substance can be removed from the circulating blood of living animals by

dialysis, a sort of an artificial kidney. The blood runs from an artery through a series of connected colloidin tubes and returns to a vein. The tubes are inclosed in a case containing normal salt solution. The coagulation is prevented by hirudin. Salicylic acid was found to be eliminated through the tube in about the same manner as through the kidneys. By this method they were able to study the nature of non-protein nitrogenous constituents of the blood of which they have collected 20 grams in 112 hours.—Hess and McGuigan (*ibid.*, vi, 45) have used a simplified apparatus in which the dialysate was thoroughly mixed within the jacket by means of a rubber bulb attached to it. This was of assistance in increasing the rate of the dialysation and prevention of clotting; they did not use hirudin. They found that the sugar content of the dialysate was equal to that of the blood and conclude from this that the sugar in the blood is simply dissolved in the water of the plasma.—MacCallum, Lambert and Vogel (*Jour. Exper. Medicine*, xx, 149) passed defibrinated blood through a (modified) dialysis apparatus which contained in its jacket a solution made up of all inorganic salts of the blood except calcium. With this blood, which thus lost its calcium, an isolated extremity of a dog was perfused. They observed a reduction of the excitability of that extremity and believe they have furnished a support of the theory that tetany is due to a loss of calcium.—The term "plasmaphoeresis" has been given by Abel, Rowntree and Turner (*Jour. Pharm. and Exper. Therap.*, v, 625) to a procedure of bloodletting in which the centrifugalized blood cells, suspended in salt solution, are reinjected. By this method the animal stands the removal of enormous quantities of blood.—Gasser and Loevenhart (*ibid.*, 239) administered to animals carbon monoxide or sodium cyanide and studied the length of the time after which the stimulation of the medullary centers sets in, as a result of the decrease of the oxydative processes. On account of the shortness of the latent period they arrived at the conclusion that the lack of oxygen of itself serves as a stimulus of the medullary centers.

According to Pilcher and Sollmann (*ibid.*, 317) the left cardiac vagus is less susceptible to electric stimulation and more susceptible to the paralyzing effect of atropin than is the right vagus. Low blood pressure renders the animals more susceptible to the effect of atropin and less so to vagus stimulation.

Morphin, when injected intravenously into dogs, causes a disordered rhythm of the heart. According to Cohn (*Jour. Exper. Medicine*, xviii, 715) in dogs with a right vagus nerve only, the rhythm consists in a decided slowing of the rate of the auricles and the development of an idioventricular rhythm; in dogs with a left vagus only, the effect is little on the auricular rate, but considerable upon the conduction, which sometimes leads to a complete auriculo-ventricular block. There is therefore a complete similarity between the stimulation of the respective vagus nerves and the effect of morphine upon them.

Golla and Symes (*Jour. Pharm. and Exper. Therap.*, v, 87), who investigated the changes in the bronchiolar air-way by new methods, state that the primary action of adrenalin upon normal bronchioles is constriction, which is not parallel to vascular changes and which is abolished by urethane; when the bronchioli are constricted by other drugs adrenalin produces dilatation.

Ether and chloroform are considered as purely central anesthetics. Auer and Meltzer (*ibid.*, 521) found that ether, by inhalation, produces also a curare-like action upon the motor nerve endings. Chloroform, however, according to Githens and Meltzer (*ibid.*, 523) exerts no peripheral effect.—Auer and Meltzer (*ibid.*, 524) found that an injection of magnesium sulphate into the lumen of the small intestines of dogs and rabbits may lead to respiratory paralysis and eventual death of the animals.

The following two news items are recorded here on account of their interest for the development of physiology and experimental biology in this country. First, the *American*

Journal of Physiology, which has been owned and edited by Dr. W. T. Porter, has been taken over since April, 1914, by the American Physiological Society, by which it is now owned and edited under the control of an editorial board, the managing editor being Dr. D. R. Hooker of Johns Hopkins Medical School. Second, at the last annual meetings (Dec. 29, 1913) the American Physiological Society, the American Society of Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, and the newly formed American Society for Experimental Pathology united in one association under the name of Federation of American Societies for Experimental Biology.

PATHOLOGY AND BACTERIOLOGY

MARTHA WOLLENSTEIN

General Survey of Progress.—The year 1914 has not been marked by any epoch-making discoveries in the field of bacteriology and pathology, but excellent work and valuable results have been reported. Of special interest is the experimental proof of the value of the lymphoid cell in the defensive power of the organism against malignant new growths.

The true value of the discovery of the specific etiological factor in typhus fever must wait for further confirmation, and so must the work on the transmutation of the members of the pneumococcus-streptococcus group of bacteria. Nevertheless, all these results suggest problems for further investigation in pathology and bacteriology and thus stimulate interest and work.

Epidemic Poliomyelitis. — Experimental work in poliomyelitis during the year has confirmed the organism found in 1913 by Flexner and Noguchi as the etiological factor in the disease, and has thrown further light on its pathogenesis. Flexner and Amoss were able to show that the specific microbic virus may reach the central nervous organs through any nervous channel, traveling along the nerve fibrils. Thus the olfactory lobes of the brain are reached when the upper respiratory mucous membrane is the entrance point of the infection, and when the eye is infected the virus travels through the retina, along the optic nerve and so to the brain. Injections into the sciatic nerve reach the spinal cord. The spinal fluid then carries the virus throughout the substance of the nervous system. When injected into the blood, on the other hand, the virus is not deposited in the nervous system unless the blood vessels and the choroid plexus have been injured. In other words, it is far more difficult to infect the nervous system through the blood than through the nerves. The work supports the view that infection in epidemic poliomyelitis in man is local and neural by way of the lymphatics, rather than general by way of the blood. Hence the authors uphold the belief that the infection atrium of poliomyelitis is the upper respiratory mucous membrane. (*Jour. Exper. Medicine*, xx, 249.)

Epidemic Cerebrospinal Meningitis. —Epidemic cerebrospinal meningitis is caused by a micrococcus first described by Weichselbaum. An antiserum for the treatment of the disease was introduced by Flexner and the mortality rate greatly reduced in consequence. A certain percentage of cases, however, failed to respond to the serum treatment, and it was assumed that certain strains of meningococci were serum-fast, that is, able to resist the action of the immune serum. Dopter in France studied meningococci which did not give the ordinary serum reactions with antimeningitis serum *in vitro*, and proposed the name "parameningococcus" for them. Investigations in this country have shown the fact that while meningococci are not all alike in their serum reactions as regards agglutination, phagocytosis, complement deviation and animal protection, the parameningococci differ from the normal strains far more than the latter differ among themselves. Since the parameningococci are found in a certain percentage of cases of meningitis, and since the antiserum used in treat-

ing meningitis is made by inoculating horses with normal strains, it becomes obvious that strains of parameningococcus should also be used for the production of the immune serum, thus giving every case of meningitis the benefit of the introduction of immune bodies of both normal and parameningococci. (Wollstein, *Jour. Exper. Medicine*, xx, 201.)

Transmutations Within the Streptococcus-Pneumococcus Group.—It is a well known fact that not all streptococci (round bacteria growing in chains) are identical biologically and chemically, and that they differ very markedly in pathogenicity. That the pneumococcus and the streptococcus are closely related organisms is also true, but their cultural and morphological characteristics are sufficient for identification in the vast majority of strains. Rosenau claims to have brought about the transmutation of various strains of the streptococcus groups into others, and into pneumococci; and he has converted pneumococci into streptococci and back again into pneumococci, the reaction thus being a reversible one. The changes were brought about by animal inoculations and by growth in symbiosis with other bacteria. Rosenau suggests that similar changes may occur in various foci of infection in the animal body, so that at the point where the cocci of these two groups enter the human body they may undergo changes which fit them for attack on one organ or another (*Jour. Infec. Diseases*, xiv, 1). For instance, should a pneumococcus enter the body through the mouth, conditions there would determine whether it should remain a pneumococcus and invade the lung, producing a lobar pneumonia, or whether it should be changed into a less virulent streptococcus and invade the heart valves or the joints or only the tonsils. Confirmation of this work will be watched for with interest.

Diphtheria: the Schick Reaction and Its Practical Application.—It has long been known that the blood of normal persons contains diphtheria antitoxin, and it has been shown that such normal antitoxin is physically and chemically identical with the immune antitoxin obtained by inoculating horses with diphtheria toxin. Only persons having no antitoxin or only a very minute quantity of it in their blood contract diphtheria. Schick of Vienna devised a simple clinical test for the presence of diphtheria antitoxin, based upon the fact that a minute quantity of diphtheria toxin, when injected into the skin, causes local irritation. This manifests itself in a circumscribed area of redness and infiltration, persisting for seven to ten days, and on fading showing superficial scaling and a persistent brownish pigmentation. In this country, Park, Zingher and Serota (*Arch. of Ped.*, xxxi, 481) have made a study of the Schick reaction and found it very valuable. The development of the local reaction means that there is not sufficient antitoxin in the blood to neutralize the minute quantity of toxin injected, and therefore the person is liable to contract diphtheria. The absence of the local reaction, on the contrary, means that sufficient antitoxin is present in the blood to neutralize the injected poison and consequently the subject is immune. At least 1/30 unit of antitoxin per c.c. of blood is needed to prevent the reaction.

About 50 per cent. of all human beings give a negative Schick reaction and therefore show immunity to diphtheria. The age period giving the lowest percentage of negative reactions is that between two and five years, corresponding to the time at which the highest incidence of clinical diphtheria is found. Newly born infants give about 93 per cent. of negative reactions, explaining their immunity to diphtheria. The practical value of the test lies in the fact that its application makes it possible to separate the naturally immune subjects from those requiring prophylactic doses of diphtheria antitoxin whenever exposure to diphtheria has occurred. In this way unnecessary injections of foreign (horse) serum are avoided.

Typhus Fever.—In a preliminary communication Plotz (*Jour. Am. Med. Assoc.*, lxii, 1556) describes an anaerobic microörganism which he was able to isolate from six cases of typhus fever and also from five cases of Brill's disease. It has been proven

that Brill's disease, originally differentiated from typhoid fever as a special disease entity of unknown origin, is really a mild typhus. Typhus fever is an infectious disease of which the etiology has been the subject of frequent investigations, all unsuccessful thus far. It was formerly known as "prison" or "spotted" fever, and its incidence has been greatly decreased by the modern methods of public hygiene (*A. Y. B.*, 1912, pp. 711, 718).

Plotz describes the organism which he isolated from the blood of typhus fever patients as a small bacillus, at first incapable of growing in the presence of oxygen; but after artificial cultivation it acquires that power. Serum tests were made with the bacillus and the blood of typhus fever convalescents with positive results. Inoculations of the cultures into guinea-pigs were followed by results comparable with those obtained by the injection of the blood from typhus fever patients into these animals. It is by means of such guinea-pig inoculations that the virus of typhus has thus far been kept alive, though its specific entity had not been isolated. Anderson (*Jour. Med. Research*, xxv, 467) found that passage of the virus of typhus fever through guinea-pigs had no effect on the infectivity of the virus for the monkey, and that both these animals have a natural immunity to the disease. (See also *Medicine, infra.*)

Pellagra.—Pellagra is a disease characterized by digestive disturbances, erythematous roughening of the skin of the hands, feet and neck, and nervous symptoms. It has been studied abroad for two centuries and is increasing alarmingly in this country in the states of the south and middle west, and especially in institutions for the insane. Two etiological possibilities are recognized—that the disease is caused by a microörganism, and that it is due to an error in diet. Recent bacteriological studies made with the blood, secretions and excretions of pellagrins by the U. S. Public Health Service, under Dr. Joseph Goldberger, gave absolutely negative results. Inoculations of monkeys were also negative. The studies point to a dietary cause of the disease. (*Public Health Reports*, xxix, No. 27, Sept. 11, 1914; see also *Public Health and Hygiene, infra.*)

Examination of the spinal fluid from 106 cases of pellagra further negatives the theory of the infectious origin of the nervous lesions of the disease, because such fluids showed no evidence of any inflammatory elements.

Factors of Resistance to Heteroplastic Tissue Grafting.—Experiments in 1913 in the transplantation of tumors showed that the chick embryo offers suitable conditions for the growth of implanted tissues, both embryonic and adult, of the same or foreign species (*A. Y. B.*, 1913, p. 720). At the time of hatching, however, the chick develops a defensive mechanism against the tissues of foreign species. One of the most interesting facts thus far brought out by the experimental work on neoplasms is that the implantation of grafts of adult spleen or bone marrow supplies the chick embryo with the power to resist the growth of grafts of foreign tissues. The embryo with such grafts of spleen or marrow then shows the same resistance to foreign tissue as does the adult animal. Other adult tissues do not supply this defensive power to the embryo. The small lymphoid cell, common to both bone marrow and spleen, is obviously an active agent in this defensive power. (Murphy, *Jour. Exper. Medicine*, xix, 513.)

Cultivation of Human Tissue in Vitro.—A distinct addition to the subject of tissue growth in vitro (*A. Y. B.*, 1912, p. 699; 1913, p. 719) was made by Losee and Ebeling, who devised a technique by means of which they were able to keep human connective tissue in a condition of active life for two months. The connective tissue used in the experiment was obtained from a fresh four-months-old fœtal cadaver. (*Jour. Exper. Medicine*, 1914, xix, 593.)

The same observers succeeded in cultivating human sarcomatous tissue for several generations, using material from a large round cell sarcoma. The value of these results in the study of the growth of human malignant tumors is obvious. (*Ibid.*, xx, 140.)

MEDICINE

ALEXANDER LAMBERT and HARLOW BROOKS

General Survey of Progress.—No remarkable or epoch-making discoveries have marked the progress of medicine in 1914. The literature published, however, has been more than usually abundant and has clearly indicated the interest of the profession at large in research and scientific rather than empiric methods. A notably increasing interest is manifested in the subject of treatment and particularly striking is the tendency shown in such studies to base them upon the recent teachings of physiological and chemical research rather than on empiricism or on mere clinical observation. The literature of the year shows also a very general familiarity of practitioners with the methods and results of scientific research and even purely practical subjects are for the greater part treated in such manner as to demonstrate the underlying familiarity with those sciences on which medicine is built up.

Epidemic Dysentery.—Epidemic dysentery has long been one of the chief disease conditions likely to kill or incapacitate those living in tropical and subtropical countries. It occurs also, though mostly in a sporadic form, in the temperate zones and occasional instances are found over the entire world. The disease has long been one of the most serious hygienic problems in military and industrial encampments and it has been responsible for a high percentage of the incapacities and deaths in such communities for centuries. Two definite types of the disease are recognized, one caused by an amœba, the other by a bacillus. Not only do the infections cause frequent deaths, but those who recover from the acute stages are very likely to suffer indefinitely from the complications or chronic forms.

The wide dissemination of the disease in Porto Rico, the Philippine Islands and in portions of our own states has caused great interest in the subject in this country. The disease is chiefly transmitted through the agency of water or food which has become infected from discharges which contain the bacilli or amœbæ, and flies have long been known to be among the most frequent intermediate carriers of the infection. Although it is entirely possible effectively to quarantine against the disease by proper attention to hygiene and particularly to food and water supplies, recent experience in Vera Cruz has shown the partial inadequacy of such measures where the hygienic control of a surrounding native population is not possible. While many of the cases in the army at Vera Cruz have apparently been relapses of infections originally contracted in the Philippines, some fresh infections have also arisen doubtless from flies or from unauthorized food infected by the native population. Army surgeons have thus been enabled to try out a new method of treatment which promises to supersede all others previously employed and greatly to lessen not only the number of cases but also the number of deaths from the dysentery infection.

Emetin has previously been quite extensively employed in India, China and in this country, notably in New Orleans, and the critical studies of Army surgeons have apparently corroborated the general experience of the British authorities and of nearly all those who have studied its effects in this intractable infection. Unlike our previous best endorsed methods of treatment, the use of the drug, which is administered hypodermically and entirely without discomfort to the patient, is followed by almost immediate response and apparent cure within a few days or even hours. It now seems that at last a method of successful and easy treatment for this very frequent infection has been established, although it appears to be chiefly, if not solely, beneficial in those instances caused by the amœba coli. Not only does the drug promptly relieve early cases but it also seems to prevent and eliminate complications, even such serious ones as abscess of the liver or lung. The present status of the emetin treatment of amœbic dysentery has been very clearly summarized by Vedder (*Jour. Am.*

Med. Assoc., lxii, 501), who discusses also in a brief but satisfactory manner the theories of drug action and the experimental evidence in regard to the subject. Therapeutic results in cases of amœbic dysentery have been so striking that the drug has been tried out in many other diseases where such selective drug action would be desirable. As yet no decisive results in other diseases have been certainly noted, though Raeburn, for example (*Brit. Med. Jour.*, 1914, pp. 703, 2778), reports improvement under the drug in pulmonary tuberculosis although it has no bactericidal action in this disease.

Malaria and Yellow Fever.—Among the other important medical lessons demonstrated by the military occupation of Vera Cruz has been a brilliant vindication of the war against malaria and yellow fever, so effectively enforced on the Isthmus by Surgeon-General Gorgas. Notwithstanding the almost universal prevalence of malaria in Vera Cruz among the native population, but a relatively small percentage of cases developed in our army, clearly due to the aggressive steps taken to do away with the mosquito pest, assisted by use of prophylactic doses of quinine. A marked decrease in the number of malarial cases in the native population was also remarked as a result of the antimalarial campaign. Such infections as developed were mostly near the lines of the Mexican troops, among whom, of course, it was impossible to enforce the rules promulgated in the city proper. Such cases undoubtedly developed from the bites of mosquitoes first infected by biting the Mexican soldiers.

Leprosy.—Since 1908 (Pub. Health Report No. 42, 1908) it has been suspected that leprosy might be occasionally disseminated through the agency of flies. This supposition was verified by Currie (Public Health Bull. No. 39, 1910) and by Leboeuf (*Bull. Soc. Path. Exot.*, v. no. 10, Dec., 1912). A final demonstration of this fact has been published by Honig and Parker from the Pekinese Hospital Laboratory (*Jour. Med. Research*, xxx, no. 2, 1914). Experiments involving the feeding of flies on pus and tissues from leprous sores demonstrated beyond question the manner of infection by this route. Of the flies which may so act the *Stomoxys calcitrans* probably plays the most important rôle, and next to it the *Musca domestica*.

Cancer.—Nothing in the nature of a startling innovation has been produced in regard to cancer. Probably one of the most important contributions has been a clinical study of 1,000 cases of cancer of the stomach by Friedenwald of Baltimore. From this very large amount of carefully observed material certain conclusions are reached which have a very important bearing on the practical aspects of the subject. Among these is the statement, "Of patients suffering from various gastric disturbances, 9.6 per cent. are affected with cancer." An hereditary history of cancer is obtainable in 9.4 per cent. of Friedenwald's group. "Ninety-nine per cent. of gastric cancers are primary and but one per cent. are secondary growths." "The early diagnosis of cancer of the stomach is quite difficult; the most important symptoms may be absent even though the growth may have assumed already considerable proportions." Friedenwald finds in his large series of cases that but 7.3 per cent. showed definite history of ulcer preëxisting to the neoplasm. This statement differs very materially from that of Wilson and MacCarty, who thus accounted for 71 per cent.

Syphilis.—The branch of work in syphilis which attracted most attention during the year has been concerning the treatment of syphilitic disease of the brain and spinal cord, especially of paresis and locomotor ataxia. Since it was concluded that but a small amount of salvarsan or neosalvarsan injected intravenously ever reached the cerebrospinal channel and therefore whatever organism might be lodged there, Swift, Ellis and others devised a method of supposed direct application of the drug to the central nervous tissues by first introducing it into the general circulation, then taking a certain amount of the serum secured by drawing the blood from the patient, freeing it from its morphological elements and then injecting it into the

spinal canal, having first removed an equal amount of spinal fluid. This method was devised since it had been found that when the salvarsan was directly introduced, dangerous symptoms of irritation appeared. Considerable benefit in a good many cases was reported from this method. Nevertheless chemical examination of serum so treated showed it to contain but an infinitesimal amount of arsenic, far too little to have any active bactericidal effect. The benefit then assumed to follow this method of treatment must therefore be accounted for upon some other basis than of direct effect on the syphilitic organisms. Certain experiments seem to indicate that this might be brought about simply by the serum injection or possibly from the removal of a certain amount of the cerebrospinal fluid. Other observers have found the method of very little or no benefit. A wide divergence of opinion on such a matter must of course be expected until a far larger number of cases under the treatment have been carefully studied by impartial observers.

Very recently (*Am. Jour. Med. Sci.*, cxlviii, 693) Sachs, Strauss and Kaliski presented a study of cases of this type from the Mount Sinai Hospital. These investigators assert after quantitative chemical determination that as much arsenic (from the salvarsan) is found in the cerebrospinal fluid when the drug is intravenously injected in the usual way as when salvarsanized serum is directly introduced into the spinal canal. They find that the intraspinous treatment possesses no advantage and that it may be even less useful than the usual intravenous injections. They strongly advise the combined use of salvarsan and mercury given by the ordinary methods as being the most promising treatment in these cases. In tabes dorsalis they state that the subjective symptoms of the patient may be thus much improved and the disease actually arrested, while better results are reached by this than by any previously recorded method. Up to the present time less certain results have been reached in general paresis, but definite improvement is claimed. Very similar conclusions are reached by Spooner (*Boston Med. and Surg. Jour.*, clxx, 441). These studies confirm the general conclusions reached in regard to the treatment of other types of syphilis of the deep organs, namely that for best results mercury must be combined with salvarsan and that the older methods of administration still appear most efficacious.

Typhus Fever.—The probable discovery of the cause of typhus fever (see *Pathology and Bacteriology, supra*) calls attention to the excellent work which has preceded this discovery and which collectively bids fair to put this scourge in the list of well understood and easily controlled infectious diseases. Nicolle, Cornate and Conseil stated in September, 1909, that they were able to transmit typhus fever from monkey to monkey by the medium of the body louse. Anderson and Goldberger of the Public Health Service two months later published the same result from independent investigations and further demonstrated that it was possible thus to transmit the disease from man to monkey, and this work was shortly confirmed by Ricketts and Wilder. In 1912 Anderson and Goldberger showed that the ordinary head louse might also play the same intermediary rôle. Sergent, Foley and Vialatte (*Acad. d. Sc.*, March 30, 1914, p. 964) have concluded these experiments by demonstrating that these same insects are capable of transmitting the infection from man to man and further that the eggs of the louse may also harbor the virile infecting agent. They assert on apparently incontrovertible grounds that the mere bite of infected lice is capable of transmitting the disease to man and they have shown that inoculation with the ground-up eggs of these parasites may also infect. In passing, it is but just to note that these experiments, valuable as they are, have cost the life of one of our most brilliant investigators (Ricketts) who died from typhus fever contracted in the course of his studies. Goldberger similarly contracted typhus but fortunately recovered from it.

These studies have placed in the hands of physicians knowledge as a direct result of which it will doubt-

less be as easy to control and stamp out typhus epidemics as malaria or yellow fever. As a natural result of dependent studies now in progress it seems also probable that successful methods of specific treatment of cases already infected will ultimately be discovered.

The Ductless Glands and the Diseases Produced by Their Disturbance.—As a natural consequence of the contributions of physiology and pathology to medicine a new viewpoint of many disease processes has been evolved as a result of which it is now possible to class a large group of disease processes on the basis of a disordered, aberrant or exaggerated physiology. This is particularly vividly shown in regard to certain glandular structures located in various parts of the body, which, while they have no ducts, secrete materials of the greatest possible importance to growth and life. Among these so-called "ductless glands" are the thyroid gland, the parathyroid bodies, the thymus body, the pituitary and adrenal bodies. With any of these structures totally inactive, life has been shown to be impossible, and their disturbance produces definite disease conditions with which every progressive physician is now familiar.

The best understood of these conditions is that which follows loss or diminution of the secreting power of the thyroid gland. As a direct result of this state, a condition of imbecility known as cretinism appears in infants, or a similar adult type, myxœdema, in grown persons. These diseases are perfectly cured by the artificial administration of tissue from the thyroid gland. A converse of these states is seen in exophthalmic goitre, which is characterized by enlargement of the thyroid gland (goitre), protruding eyeballs, tremors, a rapid heart action and excessive nervous irritability. This condition is curable by removal of portions of the overacting gland or by medical measures which apparently encompass the same end.

An anæmia known as Addison's disease has long been recognized as due to deficient action of the suprarenal glands, the secretion of which is now very widely used in medicine as a stimulant or vaso-contractor and to controvert conditions resulting from deficient secretion. Cannon (Wesley M. Carpenter Lect., N. Y. Acad. of Med., Oct. 1, 1914) has stated that the adrenal secretion has very much to do with the production of the phenomena appearing in excitement, anger and fear. It has been shown to be an antidote for muscular fatigue and it undoubtedly plays a very important rôle in the physiology of most emotional states. Direct application of the knowledge derived from these facts has been made in every day practical medicine, and epinephrin, which is extracted from the adrenals, has become a drug of routine employment in many conditions appearing in medical and surgical work, especially in such as present shock, impending collapse or those conditions marked by muscle exhaustion, heart failure or marked fall in blood pressure. (See also *A. Y. B.*, 1912, pp. 700-2; 1912, p. 715; and *Physiology and Pharmacology, supra.*)

Recent medical research has concerned itself largely with the pituitary gland. This body is very inaccessibly situated beneath the base of the brain and is composed of two anatomically and physiologically different portions. From studies conducted some twenty years ago it was suggested by Tamburini that oversecretion of the anterior portion of this gland had to do with the overgrowth of the body, a condition shown in a diseased form of gigantism called acromegaly. Dana and others soon after showed that most giants belonged to this class. Recent clinical studies have fully verified this theory and have added many important facts to it. Cushing and Goetsch (*Proc. Soc. for Exper. Biol. and Med.*, Oct. 15, 1913) also show that extracts of the anterior portion of this body have a marked stimulating effect on the growth and development of the reproductive glands and characteristics and when injected into rats tend to cause early and frequent breeding. Clinical observations indicate clearly that a hypo- or defective secretion has the opposite effect on the body and alters to a very striking degree not only the physical but also the

mental and psychic functions, as exampled by a retardation of tissue metabolism, mental torpor, fall in blood pressure and a tendency toward the deposition of abnormally distributed fat in cases where the secretions seem to be inadequate. Hill and Simpson (*ibid.*, Feb. 18, 1914) show that extracts of the whole gland cause an immediate secretion of milk, particularly rich in fat, in addition to other changes (see also *Physiology and Pharmacology, supra*). Extracts of the posterior lobe produce effects very similar to those induced by the injection of the secretion of the suprarenal body, rise in blood pressure and sharp and prolonged contraction of the smooth muscle tissue, particularly of the uterus. This material is now very extensively employed in practical medicine and especially in obstetrics. Most interesting and important of all has been the recognition of a physical condition known as "dyspituitarism," now known to be due to the faulty action of this remarkable bit of tissue. Dyspituitarism is manifested by tendencies toward adiposity, skeletal and sexual infantilism when the secretion is defective. Hyper-secretion produces gigantism which, when followed, as is usual, by a subsequent defective secretion, develops into the type of gigantism known as acromegaly. Very close interdependence between the actions of the pituitary gland, the thyroid, adrenal, probably the sexual glands, and the pancreas have also been shown to exist and it seems highly probable that the processes of nutrition, growth, metabolism and reproduction are largely dependent upon this interrelation of function. These conditions are now easily recognized clinically, and materials for their adequate treatment are being elaborated by physiologists and pharmacologists. Surgery has been found of very real benefit in several instances (*A. Y. B.*, 1913, p. 733), and the treatment of this hitherto barely recognized and unclassified series of disorders is meeting with definite success. The progress along this line of clinical research during the past two or three years is probably best summarized by the greatest exponent of this study, Cushing of Harvard, in his textbook *The Pituitary Gland and Its Disorders.*

Organo - Therapy.—Organo-therapy has been applied to treatment involving the utilization of such body materials as those just mentioned, but within the past few years the term has come to cover a much wider field than that including only the administration of the ductless glands or of their extracts. Comparatively recently physiologists have shown us that in many instances the proper function of one organ is dependent upon a substance secreted by some other viscus, which thus acts as a stimulant or excitor. Thus, secretion of the glands of the small intestine may be excited by the presence of some chemical substance formed by the stomach in the course of its activities. These substances, some of which have been isolated and identified, are known as "hormones." An excellent example of their action is shown in the fact that placental tissue or extracts when introduced into the body cause growth and secretion of the mammary gland. These bodies are now being extensively used experimentally in clinical medicine and there is no doubt as to the efficacy of at least certain of them in disease conditions. Future studies will certainly evolve from the hormones potent remedies of utmost benefit in treatment. One cannot but be struck with the apparent reversion to primitive concepts of medication, such as were practiced among the Egyptians and ancient Greeks, or as body materials are even now employed by the Chinese either as a matter of superstition or possibly as a result of acute clinical observation which in the light of modern advance in this direction we are at least unable to ridicule.

The Defensive Ferments of the Body and Their Relation to Medicine.—As a result of numerous chemical and biological experiments Abderhalden has shown that when foreign substances are introduced into the body out of harmony with the blood plasma, ferments or enzymes appear in the blood which are capable of breaking up or rendering inert such materials. As can be at once appreciated, this theory may be made able to account for many of the most important pro-

tective processes of the body against disease.

Relatively simple biochemical methods for the discovery of such ferments have been elaborated and it is now possible to utilize them in the diagnosis of such conditions as deep-seated cancer and in a very large group of other conditions covering a wide range of etiology. Not only are these protective ferments formed in the blood plasma in disease but also in certain physiological states. For example, in pregnancy, placental products enter the blood, causing the formation there of a specific ferment which may be detected and the condition thus diagnosed. Concerning this particular test Skeel and Stoner (*Trans. Am. Assoc. Obst. and Gyn.*, 1914) conclude, however, that the test is delicate and requires great care and considerable experience for successful work.

The importance of the method to practical medicine, aside from its great and unquestioned value as a theory and as an explanation of the mechanism of body resistance, lies chiefly in the fact that these tests may be utilized for the purpose of diagnosis in many obscure conditions. These diagnostic methods have perhaps not attained as yet a sufficient degree of accuracy to enable them to be classed as clearly proven methods, but that they will soon become such and of great value, particularly in obscure physiological and pathological states, seems certain. Abderhalden's theories have just received a very welcome presentation to the English-reading public through a recent English translation of the third edition of his book on the subject.

Radium.—During the year the technique of radium and other radioactive treatments has been carefully worked out in practice. Although very encouraging results have been reported, principally from unreliable sources and not infrequently from institutions of clearly fraudulent nature, the experience of the year's work among really scientific observers has not encouraged greater hope of securing radical relief from such agents.

The exact status of the question of the use of radium in the treatment of cancer is perhaps most correctly summarized in the *Monthly Bulletin* of the Department of Health of New York City (iv, No. 4, 1914). This authoritative statement reads as follows:

> The curative effects of radium are practically limited to superficial cancers of the skin, to superficial growths of the mucous membranes and to some deeper-lying tumors of the bone, etc., which are not very malignant. The problem of the constitutional treatment of established, inoperable cancer is still untouched by any method yet devised or likely to be devised for administering radium.
>
> Even among the so-called radium cures it still remains to be determined in many cases whether the favorable result is permanent or is to be followed sooner or later by the usual recurrence.

In regard to the well-attested dangers of treatment of cancer by the use of radium two illustrative cases are reported by Meyer (*Zentralbl. f. Gyn.*, xxxviii, 1092). In both these instances the action of the radium appears to have excited a serious degree of inflammation and necrosis with a resulting sepsis of very grave character.

The use of radium emanations or of radioactive substance in the treatment of constitutional diseases such as arthritis deformans and rheumatism and in the metabolic disorders has not been such as to justify more than hopeful skepticism. This subject is still entirely in the field of experiment, notwithstanding the favorable or highly laudatory reports which have in great part been the chief "emanation" of certain radium institutions founded on a strictly commercial basis and entirely without scientific guarantee.

Oral Sepsis.—Comparatively recently much interest has been aroused in the subject of infectious processes located in the mouth and particularly about the teeth. It has been shown by Rosenau and Billings that in no small number of instances general infection or septicemia originates from such foci. The relation between such lesions and endocarditis, pyemia and particularly chronic arthritis and synovitis has since been emphasized by numerous authors. Probably the most thorough of these studies is that

presented by Camac. The studies have vividly pointed out the great importance of skilled attention to the condition of the mouth and teeth, showing the matter to be of far greater importance than one of mere local convenience and cleanliness.

College Athletics.—For several years past the subject of college athletics has attracted attention from medical observers, especially those connected with educational institutions. The general trend of medical investigations along these lines has been to determine the effects of college or other systematic athletics on the after-life of the individual. It has been shown that in many instances college athletics, especially such as are of a highly competitive type, tend rather to unfit than to prepare the young man for subsequent life. Inquiries of this nature have been most effectively carried out in the national naval and military academies at Annapolis and West Point, and as a result several radical modifications have been enforced in these institutions. The fact that it has seemed wise to restrict and govern athletic activities in these two schools, the personnel of which is composed solely of relatively perfect young men, in order that their future physical well-being may be properly safeguarded, points out most vividly the necessity for even more careful supervision of these matters in those institutions where physical perfection is not an entrance requirement.

Drs. H. S. Wingert (Ohio State University), Raymond G. Clapp (University of Nebraska) and C. E. Hammet (Northwestern) have recently made an investigation of the athletic customs prevailing in 150 of the higher institutions of learning. In regard to this report the *Journal of the American Medical Association* says editorially, "A period of reconstruction in the whole domain of college athletics is approaching." Beyond doubt the tendency is now toward developing the physical education of the average student and not so much that of the exceptional athlete, and the object is becoming not so much the winning of games or the breaking of records as an attempt to perfect the body along those physical lines which make resistance to disease and normal health more probable during the active business or professional age of the college man.

Eugenics. — Considering the very large amount of literature which has recently appeared on the subject of eugenics, it may seem somewhat strange that the medical press has contained few really serious studies. Doubtless the chief reason why so little real medical literature has appeared recently on the topic is because there is and has been for years a unanimous opinion in the medical profession against the marriage of those capable of transmitting disease to one another or to offspring. This opinion is officially noted, for example, in a communication from the Massachusetts Board of Health to the legislature of Massachusetts of May 14, 1870. It is probable that the general public is little aware of the very important and constant influence which the family practitioner has exerted toward this end for years past, sustained by the intelligent young men and women of his clientele. Beyond this point medical interest in the subject does not generally prevail.

There can be, of course, no doubt whatever that scientific selection and breeding would produce a more perfect human animal, but the question immediately arises, and apparently this is the point which medical writers are averse to indorse, whether mere physical perfection is the highest desideratum. The general feeling in the medical profession appears to consider as more vital to human welfare, after the elimination of the disease factor, domestic congeniality, home building and the generation of children of a high mental, moral and social type rather than a mere physically perfect animal. Were the latter the chief object, as would appear to be the opinion of pure biologists in large part, it is quite certain that from a physical standpoint the domestic and moral customs of barbaric tribes are more desirable than those current at the present day.

A most important article illustrating the greatest historic demonstration of this view, namely that in Sparta, by Dr. M. Moissides, editor of the Greek medical journal *Hip-*

pocrates, has been translated in the *American Practitioner* (xlviii, 406). The principle of the Spartan system was that the sole object of marriage was procreation and the production of children of as perfect physique as possible for military purposes. Relatively little, if any, attempt was made to produce a high mental type, nor do the rules seem to have been rigidly enforced on any other grounds than for the best military utility. It seems very doubtful that such a design would satisfy the present aspirations of the better types of mankind. The measures enforced not only scientific mating but the same sort (and object) of solicitous care as to physical "type" and "points" as is now the rule in the breeding stables of high-grade cattle and horses.

While there can be but little doubt that the theories proposed by biologists in regard to the determining factors of heredity on physical characteristics are in the main true, apparently few physicians are prepared to accept from experimental evidence only so sweeping a statement as that "sincerity or insincerity, generosity or stinginess, gregariousness or exclusiveness, truthfulness or untruthfulness, are all qualities whose presence or absence is determined largely by the factor of heredity" (Davenport, *Medical Times,* Oct., 1914). Practically this same view is advanced by Metcalf (*Pop. Sci. Monthly,* lxxxiv, No. 4, 1914), who states further that "social welfare, not individual comfort, is the ultimate criterion in marriage."

The position apparently indorsed by the medical profession is that eugenics should be practiced to the full extent in so far as the transmission of disease or definite mental taint is concerned. The question of the care of the mother during and after pregnancy has recently received the most thoughtful attention, as it has in the past since the remarkable instructions of Hippocrates, Galen and Soranus; but in so far as we may judge the attitude of the profession as expressed in its recent literature, æsthetic and idealistic standards are considered to be dominant desiderata in selection and family building and the impression seems to be general that a high grade of domestic ideal is more desirable than the building of a mere physically perfect race, even though it be highly probable that in this one respect the race has deteriorated rather than progressed.

The Treatment of Drug Addiction.—New York State and New York City have recently enacted stringent regulations designed to limit the ease with which habit-forming drugs may be obtained and to provide for the treatment of those afflicted with such habits (see also *Public Health and Hygiene, infra*). Unfortunately, as now constructed the law definitely limits the legitimate professional use of such drugs as morphine, codeine, heroin, cocaine and chloral, and as it is at present interpreted a certain amount of needless suffering on the part of those afflicted with painful disease, especially those who live distant from medical attendance, has followed. As a result a certain degree of antagonism to the law on the part of patients in particular has developed. At present the most serious defect of the law, however, is that while it provides for legal treatment for the unfortunate victims of drug addiction, the community has as yet failed to provide the hospitals or institutions which may adequately accept and manage this particularly distressing and always chronic type of cases. There is no doubt that drug addiction is increasing and the new public viewpoint that the condition is a disease, meriting treatment instead of punishment, is a most hopeful sign.

Dietary Questions.—A summary of the year's advance in medicine could not be considered complete without reference to the continued interest and steady progress which have been manifested in the study of the disorders of metabolism and in the scientific investigation of food in its relation to health and disease. Among the notable books of the year must be mentioned the popular publication of Graham Lusk, whose eminently practical researches along these lines are familiar to every physician in *The Science of Nutrition,* now followed by *The Fundamental Basis of Nutrition,* which discusses in terms comprehensible to lay as well as medical readers the problems of diet.

SURGERY

ALEXANDER B. JOHNSON

Surgical Education.—The American College of Surgeons, organized in 1913 (*A. Y. B.*, 1913, p. 730), is striving to raise the standard of professional training by increased and systematized clinical teaching in schools and hospitals, and for the purposes of its propaganda the 2,700 members now enrolled are being asked to subscribe $500 each to a permanent endowment fund. They hold that no man should be permitted to proclaim himself a competent operator until he has served a practical apprenticeship under an experienced and capable surgeon. Such a period of training should last for several years, and should embody the development of an adequate technique and the habit of personal responsibility. The public should be in a position to know the real qualifications of men to whom they entrust their lives. The importance of a continuous service in hospitals for the staff is also insisted upon.

The late Charles McBurney used to say that it requires ten years of constant surgical work to make a competent and self-reliant surgeon. The field of surgery has become so broad that a man ought to select some special branch and make himself master of that. No one can be an expert in every field. In well conducted hospitals the diagnosis of the individual case is not made in a moment by the intuition of some master mind. The patient often passes under the observation of many men, each competent to pronounce upon some particular question. The oculist, the internist, the pathologist, the radiographer, the neurologist, the genito-urinary specialist and the gynecologist may all contribute their special knowledge. The evidence is presented to the surgeon *seriatim* and considered by him before a definite diagnosis is made and appropriate treatment planned. All this has become a matter of duty to the patient. Many cases are sent to hospitals simply in order that a rational diagnosis may be made. A large number of conditions formerly treated by internists are now successfully treated by operation. As the field of surgery has enlarged, the responsibility of the surgeon has increased.

Surgical Problems of the European War.—The present war in Europe has aroused great interest in the treatment of accidental wounds and especially of wounds produced by firearms. The details of the actual conditions are meager. Certain facts, however, are known and certain others may be inferred with a fair degree of probability. The numbers of wounded have been so great that only a small proportion have received any medical aid at all on or near the battlefield. The medical corps has been simply overwhelmed by the vast number of injured men, and in consequence many who arrive at base hospitals have had no dressing applied. The following are some of the conditions noted by an eye witness, seen among German wounded: extreme exhaustion from bleeding; maggots in the wound; gangrene; tetanus; severe wound infection. All observers agree that wound infections of a serious character are matters of common occurrence.

Wounds by Shrapnel Fragments and Bullets.—Wounds made by shrapnel bullets are very numerous. These wounds are often multiple. In the Balkan wars wounds from shrapnel constituted about 20 per cent. of the wounds observed. In the present war the proportion is much higher. The trunk, back and lower extremities are frequent sites. The wounds are contused and lacerated, commonly infected. In the early months of the war, among the Allies near Paris, wounds from shrapnel bullets and fragments of the case outnumbered rifle bullet wounds nearly ten to one. Infections produced by anaerobic bacteria are frequent, causing tetanus and gangrenous processes. Infections by gastrogenic bacteria are also common; these are among the most deadly of all infections. The fighting in France and Belgium has been in a country long under cultivation. The manure used upon the soil may well be the home and source of the germs. Wounds from shell fragments and

hand grenades, which are also very numerous, are lacerated wounds in which lodgment is common and infection the rule.

Wounds by Rifle Bullets.—These include the wounds made by the hand rifle and by machine guns. An impression conveyed by the public press and by letters and interviews with physicians and surgeons at base hospitals, notably in England, is that the modern small-caliber, pointed rifle bullet is not very destructive and is humane in its action and that the wounded for the most part quickly recover. Let us see whether these conclusions are justified. Most of the fighting is done in trenches. When a soldier fires, he rises sufficiently to place his rifle on the parapet supported by his left arm and sights with his right eye. His left hand and forearm and his head are exposed. Those who have critically inspected the photographs of groups of wounded men in the base hospitals will have noted an astonishing number of wounds of the left forearm and hand. The head is a larger mark. Where are those who were hit in the head? The question seems to answer itself. Most of them are in the trenches where they bury the dead.

From many sources we read of the terrible wounds produced by soft-nosed or so-called dum-dum bullets in this war. These are extensive comminuted fractures, frightful wounds of exit. There is no reason to believe that any of the combatants are using such bullets. Experience in other wars and in shooting large animals shows that the modern, hard, sharp-pointed bullet will produce the same results. In the wars in the Balkans the ratio of killed to wounded far exceeded that in any previous conflict. In the Bulgarian army the ratio of killed to wounded was 1 to 2.5. The Turks used the small-caliber, hard, sharp-pointed bullet, not previously used in warfare on a large scale. This is the bullet used by the present combatants in Europe. Wounds of the abdomen and chest were very fatal and among those who survived long enough to come under hospital care, inflammatory complications due to infections were frequent and severe. An observer, Major P. C. Fauntleroy, M. C., U. S. A., went so far as to say that body wounds were so uniformly fatal on the battlefield that they seldom came under treatment.

The reasons why the small-pointed bullet is on the one hand called "humane" and on the other "very destructive" are chiefly two. First, the initial velocity of the bullet is high. The bullet from the U. S. Army Springfield rifle has an initial velocity of 2,700 ft. per second. Second, the center of gravity of the bullet is near the base; consequently, it is easily upset in its flight, so that it strikes sidewise. At short or moderate ranges up to 600 yd. the bullet passes entirely through the body in a straight path. If no bone is struck, no joint opened, no large blood-vessel or nerve trunk cut, the wound is narrow and simple. The wounds of entrance and exit are mere punctures. Such a wound may heal in a week under a simple aseptic occlusive dressing and the patient may soon be ready for duty. On the other hand, blood-vessels and nerves, tendons, and all soft structures are cut as with a sharp knife, and from a large blood-vessel thus divided a man may bleed to death in a few minutes. Hollow organs filled with fluid, the stomach and bladder, are burst within these ranges. The skull also may be burst and the brain disintegrated. To give some idea of what a shot through the head from one of these so-called "humane" bullets means, it may be well to relate a case which occurred in the U. S. Army in the Philippines. A prisoner tried to escape; he was fired upon by the guard at a distance of about 100 ft. The bullet entered the back of his head rather high up and came out of his forehead. It then passed through a tree eight inches in diameter and buried itself in the ground to a depth of two feet, whence it was recovered undeformed. The head of this man was examined. The upper portion of the skull was cracked in all directions and the brain extensively lacerated. The reporter of this case naïvely remarks that if the bullet had struck the skull lower down, the injury to the skull and brain would probably have been more extensive.

The liver, spleen and kidney may be burst or at great ranges perforated. Shots which pass through the chest and strike the heart or the great blood-vessels at the root of the lung are almost instantly fatal. The spongy bones and spongy ends of long bones are often simply perforated. The hard shafts of long bones and other hard bones, such as the lower jaw, offer more resistance and permit the bullet to expend a greater part of its kinetic energy. The bone is shattered widely, and bone fragments, or perhaps teeth, become secondary missiles, increasing the destruction of the soft parts, hence the comminuted fractures and the frightful wounds of exit produced by these bullets. As the range increases these very destructive effects diminish, and the bullet will often lodge. Yet at ranges of 2,000 yd. and over, the bullet may wabble. When the bullet is thus upset by ricochet or impact on the tissues, the destruction is correspondingly increased with the greater area of striking surface.

The terrible effectiveness of modern rifle fire, even at great ranges, is perhaps not generally known. The fighting is done at ranges seldom less than hundreds of yards and often nearer a mile. The soldier goes into battle with from 150 to 200 cartridges on his person. These may be replenished from time to time. From his rifle he can fire, if necessary, perhaps 15 to 20 aimed shots a minute according to his acquired skill and natural aptitude. The so-called point-blank range of the best military rifles is so great that the soldier can, without changing the level of his sights, by taking a fairly careful aim, have a good chance of hitting a man standing up, in some part of his person, distant anywhere between a few feet and over 700 yd., and a man on horseback or the horse somewhat further away. The Springfield rifle is sighted to a distance of over 5,000 yd. It is said to be annoying at 2,000 metres, effective at 1,200, and decisive at 600. This means that at the latter distance no troops not supported by artillery can be expected to advance successfully in the open on level ground and in the daylight against a well-defended entrenched position. The soldier cannot usually aim at a particular part of the human body, simply because he cannot see it. Often the men will be unable to see any mark at all except a low earth parapet, a wall, a line of bushes, a beet field or the like. They are given a range by their officers and told what to aim at, and upon that zone, as it may be called, there is poured upon occasion such a storm of bullets that no part of a man's person can be long exposed without being hit. Although engagements are fought in various ways and at some part of the opposing line artillery fire may predominate, yet in all land battles fought in the open the assault and rifle fire are as a rule the decisive factors.

Treatment of Wounded.—While the action lasts, it is impossible for the ambulance corps to approach the wounded on open ground near enough to be of aid without deadly peril to themselves, and manifestly in modern war the only way to protect the soldier from wound infection is to furnish him with a first-aid packet of sterile gauze, a roll of zinc oxide sticking plaster and tincture of iodine, and teach him how to use these materials. He will have to depend usually upon himself or a comrade to apply the dressing. If it is applied at once without previous wiping, fingering or probing, his wound, if simple, will very likely heal without further dressing. If the wounded are to be transported to a distance, the most important factor of safety, after a sterile dressing, is immobilization. If the wounds are simple wounds of the soft parts, slings, sticking-plaster and bandages may suffice. If there is even a suspicion of injury to bone, immobilizing splints should be used. A useful material is wire netting; failing this, splints must be improvised from the material at hand.

In modern surgery iodine is the antiseptic *par excellence*. Simple painting of the skin with seven per cent. tincture of iodine is practically all the preparation made for the most serious surgical operation. Accidental wounds are swabbed with iodine on the assumption that all may be infected, and the application scarcely interferes with primary union. Since all gun-shot wounds are likely to be

infected in some degree either from the bullet itself, the clothing of the soldier, his own skin, his fingers or the soil, the use of iodine is in all such cases strongly indicated. So simple and effective is this method of treatment that, in civil life, it would probably repay employers of engineers, machinists, and all others who are likely to suffer from accidental wounds, to supply first-aid packets and iodine in readily accessible places and have the men instructed in their use.

So prevalent is tetanus among the wounded in this war that a prophylactic injection of antitetanic serum should be made at once whenever practicable. The value of this measure has been demonstrated. After the disease has once developed, even large doses have less effect. It has been shown that, while in untreated cases the mortality is 80 to 90 per cent., in cases treated by antitoxin it is about 20 per cent. lower. Recent results from early intraspinous treatment promise to reduce the mortality very greatly. Park and Nicoll recommend both intraspinous and intravenous injection of antitoxin at the time of the first dose; since while the intraspinous injection affects the poison already fixed in the nervous elements, the original focus may still furnish toxins. The intravenous injection will tend to neutralize these.

The use of sera or vaccines in septic diseases caused by the varieties of the streptococcus pyogenes has not given encouraging results. The vaccines, if used, should be autogenous. There are so many different strains of the streptococcus and their toxins vary so much that what might benefit one case would poison another.

Conditions in Naval Warfare.—Nothing new has developed as yet in regard to wounds in naval warfare. In the present war the fatalities have been due chiefly to burning, drowning and asphyxiation. Aside from these injuries, wounds are caused by shell fragments and secondary missiles from the ship's structure. They are generally grave injuries, extensive contused and lacerated wounds, seared by the heated metal fragments which often lodge. They resemble the mutilating machinery wounds seen in cities. They are usually multiple injuries, and if not immediately fatal, infection is almost certain to follow.

The care of the wounded on modern battleships in action has been much studied and carefully planned. Dressing stations are established in a number of places protected from fire. The sick bay and operating room with their equipment are in time of peace above the water line and unprotected. In time of war they are removed below, behind heavy armor, filled coal bunkers or barbettes. Hot and cold water, dressings, tables, instruments and other surgical supplies are at hand. These spaces, ordinarily used as sleeping apartments, are ample in size for the care of many men. Near every gun in action are placed dressings, splints, boric-acid solutions for the eyes and cold water for drinking. Under battle conditions, however, these preparations are for the most part made in vain. All the energies of the crew must be directed toward efficient control of the ship and gun fire. The actions are very brief. The casualties occur, not to single individuals as a rule, but to large groups. They are cataclysmic in character. As the result of gun fire, the occupants of an entire compartment may be destroyed to a man by a single shell. Death occurs from wounds, burns, scalds and asphyxiation from poisonous gases. The mental processes of men under such conditions are either abolished, reduced to a condition of dazed apathy, or in some cases the wounded fall into an uncontrollable fear bordering on insanity. Each group of men is confined in a closed steel compartment which must not be opened while the action lasts. It is impossible to pass from one compartment to another, even in the depths of the ship, while the steel doors are closed, so that for the most part the wounded, while the action lasts, must lie where they fall. The surgeons and their aids may then care for the wounded temporarily, stop bleeding, apply dressings and splints, give morphine and stimulants, put the labeled "dead" out of sight in coal bunkers, and see that the blood is washed away. The wounded are removed at the earliest possible moment to a hospital ship or a shore hospital. Their

treatment is first the treatment of shock and hemorrhage, later the treatment of infected wounds.

Cancer.—In spite of the numerous and energetic investigators in this field, we are no nearer the solution of the cancer problem than heretofore. The ultimate cause of cancer remains unknown. The treatment of cancer by means of sera has accomplished nothing. The therapeutic value of radioactive substances and the X-rays is limited to a narrow field. Some skin cancers can be cured by these agents. The same lesions can be cured more quickly and surely by operative removal. Each year's experience adds weight to the assertion that cancer is at first a local disease, which early and complete operative removal will eradicate permanently in a proportion of cases which increases year by year as earlier recognition and more thorough operative removal are more generally practiced. This is true of cancer wherever situated and of whatever variety.

Scopolamine and Morphine Anesthesia in Labor, the So-Called "Twilight Sleep."—The intramuscular injection of these drugs for the purpose of diminishing the pains of labor is not new. It has been given a prominence during the year in the public press and in medical publications hardly merited. Its use in this country has extended over a period of several years. It has not been attended by very satisfactory results, nor has it aroused much enthusiasm in the medical profession. The method has been given a recent trial in New York by an eminent obstetrician, in association with Dr. Schloessing, who had used it in the Freiburg clinic for two years and superintended the administration. Briefly, the following facts may be recorded as the result of this trial. The use of scopolamine and opium or its derivatives is contraindicated in uterine inertia. The injection is made into the muscles. The first dose is given when the labor pains of the first stage occur regularly, or about every five minutes. In Freiburg, it is customary to conduct the labor in a dark room, to stuff the ears of the patient with cotton and place dark-colored goggles over her eyes. Quiet must be preserved. The second stage of labor is prolonged. Instrumental delivery is more often necessary than in labor conducted in the ordinary way. The fœtal heart must be counted at frequent intervals (every 15 minutes). The dose of scopolamine must be repeated in from 45 minutes to one hour. The babies are more cyanotic and artificial respiration must be practiced more often than under other conditions. In one normal labor the baby died in spite of all efforts at resuscitation. Some women forget the incidents of the labor, some do not. Some women are not quieted but are excited. The manifestations of pain do not differ notably from those observed under other conditions. Greater watchfulness, care and skill are required to conduct the labor to a successful termination.

Transfusion of Blood.—The methods of Lindemann of New York and Kimpton of Boston have found increased popularity during the year. They both transfer blood from vein to vein, Lindemann by means of numerous sterile syringes and two cannulæ, Kimpton by means of glass funnels or burettes, aided by atmospheric pressure if desired. The advantages of these methods are several—rapidity, simplicity, avoidance of suffering by both donor and recipient, ease of manipulation. No special skill is required on the part of the operator. The time saved is considerable. If possible, the usual tests should be made to determine whether or not the blood of the donor undergoes hemolysis when mixed with the blood of the recipient. If, however, these reactions cannot be tested, the transfusion may be started, and subjective symptoms and other signs shown by the recipient will determine very soon whether the blood of the donor is suitable or not. The marked symptoms of disagreement are nervous excitement and anxiety, a feeling of impending death, pain referred to the region of the heart, and shortness of breath. Under like conditions with older methods both donor and recipient were subjected to a long and painful dissection, sometimes in vain. The method of Lindemann requires more instruments and more and better trained assistants. There is no cut-

ting. The cannulæ once placed remain in the veins. In the method of Kimpton the funnels or burettes must be coated with paraffin. They must be reinserted at each refilling. This may be troublesome. From 200 to 300 c. c. of blood are used at one filling. If this is contaminated or clotting should occur, the whole is lost. If blood is not obtainable the use of Lock's solution is recommended in place of ordinary saline.

Treatment of Simple Fractures.—The operative treatment of simple fractures has been placed upon a sound, practical basis. This we owe largely to the work of Arbuthnot Lane. The difficulty in the procedure after asepsis has been the mechanical one of overcoming displacement and holding the fragments in rigid apposition during fixation. Numerous devices exist to accomplish these ends. The most recent and best is the "bone jack" of J. M. Hitzrot (*Operative Therapeusis*, D. Appleton & Co.). The advantages of this instrument are that overriding is quickly and easily overcome. The bones are held rigidly in place while holes are bored and screws, plates, or other fixation apparatus are applied.

Treatment of Fractures of the Skull.—From an experience based upon a large number of observations and 51 operated cases Sharpe (*Operative Therapeusis*, D. Appleton & Co.) urges the advantages of decompression operations in cases of fracture of the vertex and base of the skull, accompanied by marked increase of intracranial pressure. The results immediate and remote are improved thereby. Subtemporal decompression is advised. The diagnosis is to be made largely by ophthalmoscopic examination of the fundus of the eye by the direct method. The operation of subtemporal decompression should not be done during severe shock. Neither a high systemic blood pressure nor focal symptoms are necessary accompaniments of dangerous compression of the brain. Lumbar puncture is rarely indicated and may be dangerous, since the medulla may be forced into the foramen magnum and compressed. If signs of serious compression of the medulla are waited for, that is, slow pulse and marked disturbances of respiration, the mortality will be very high. If operation is done in properly selected cases, not only is mortality reduced, but the after effects of these injuries are diminished in frequency and severity.

The Spleen.—The first successful splenectomy for rupture of the spleen in typhoid fever has been reported by Conner and Downes. The patient remains well. Splenectomy in Banti's disease is curative if done before the complicating cirrhosis of the liver has developed. In von Jach's anemia splenectomy has been apparently curative in a child operated upon by Pool in the New York Hospital. Other successful cases of the kind have been reported.

Anesthesia.—Intratracheal anesthesia and anesthesia through intranasal or pharyngeal tubes are gaining a wide popularity. The advantages when good apparatus is used are marked. Aside from the cases where positive pressure must be maintained within the thorax, these methods are very convenient for any operation. Less ether is used. Its strength, temperature and rate of flow can be accurately measured. The anesthesia is more quiet. There is less secretion of mucus. The patients come out of the anesthetic more rapidly. After-depression and nausea are less. Nitrous oxide and oxygen anesthesia is strongly indicated in operations upon cases of pulmonary tuberculosis. In skilled hands it is useful in general surgery where muscular relaxation is not required. A good deal of practice is needed to give the mixture well.

PUBLIC HEALTH AND HYGIENE

Selskar M. Gunn

Coöperative Health Administration among Small Communities.—There is to-day, in the practical public health field, no more vital problem than how shall towns and cities can, with their limited resources, obtain the expert health service which they require. One promising move toward a solution has been made in the plan recently adopted in New York State by

which a greater degree of supervision of state over local authorities is established. But, while this is still in the inceptive stage, a searching trying-out of the possibilities of coöperative maintenance of a joint health office has been going on in a group of Massachusetts towns. The successful results obtained in this experiment, the first noteworthy one of its kind, are reported in a paper by Earle B. Phelps in *Public Health Reports* for Sept. 25. The equipment and duties of a local health office, the problems of local administration, and the minimum requirements of such an office are discussed at some length, and the year's work under a permanent organization is reported in detail, with analysis of costs. Appendices giving the form of agreement adopted and a list of the necessary laboratory equipment for a small board of health laboratory are added. Such a coöperative plan, it may be added, does not necessarily imply the consolidation of town interests in any other respect than that of public health, or even complete consolidation in that.

Reorganization of State Health Departments.—During the year various state health departments have been reorganized. New York State, which passed a bill for this purpose in 1913, has been making great progress under its new régime. The Massachusetts State Board of Health was abolished by legislation and replaced by a Health Commission and a Public Health Council. There is evidence of much activity in the state health departments throughout the country. This is particularly true of a number of southern states. Public-health work in the South is on the up grade. Special studies on the organization and methods used by the State Department of Health of Maryland and the State Board of Health of Minnesota were conducted during the year by Dr. Carroll Fox of the United States Public Health Service.

Coördination and Coöperation of Volunteer Public Health Organizations.—A movement has been on foot during the last two years to attempt to coördinate the activities of many of the existing volunteer public-health organizations (*A. Y. B.*, 1913, p. 743). The Central Committee on National Health Organizations has not yet made its report, but it is expected early in 1915. Dr. William C. Woodward, president of the American Public Health Association, in discussing the value and necessity of a closer coöperation and coördination in his presidential address, in December, said:

> If a maximum of efficiency can be obtained only through the consolidation of our public-health agencies into a single association or society, we must bend our efforts toward that end. Self-interest must be laid aside and each must loyally lend his best endeavor. That the end will be accomplished without disappointment and heart burnings no one can hope, but no matter what others may do the American Public Health Association must choose the path that leads to the maximum of effectiveness and adhere to it.

It seems probable that something definite toward bringing about the desired results will take place in 1915. The American Public Health Association has passed a resolution providing for a committee to arrange for a public health congress in 1916. Efforts will be made by this committee to bring about at the same place and at the same time the annual meetings of the most important national public-health organizations.

Plague in New Orleans.—A case of plague was reported in New Orleans on June 27 and a second case was discovered on the following day. Immediate steps were taken by the city and state authorities, acting with the United States Public Health Service, to protect the people of New Orleans and of other communities. Measures were adopted to prevent the carrying of infection from the city to other places in the United States and to foreign countries. On July 3 the Secretary of the Treasury directed the Public Health Service to take charge of the eradication of plague in the city. Other cases were discovered and as the chief danger of the spread of the disease is through the migration of infected rodents, effective precautions were at once instituted to prevent the escape of rodents from the city. Thirty cases of human plague and 208 cases of rodent plague were reported up to Dec. 5. Plague-eradication work has

continued in California and it is reported that the disease has been apparently eradicated.

Epidemic of Infantile Paralysis in Vermont.—An epidemic of infantile paralysis commenced in Vermont in July and was still prevailing in October. Up to Oct. 9, 212 cases were reported, with 32 deaths. Special investigations are being conducted and the State Board of Health has had a generous donation to make the investigation a thorough one.

Pellagra.—During the year considerable work has been done on pellagra. Goldberger, Waring and Willets in *Public Health Reports* for Oct. 23 give their conclusions as follows:

(1) That pellagra is not a communicable (neither infectious nor contagious) disease, but that it is of dietary origin;

(2) That it is dependent on some yet undetermined fault in a diet in which the animal or leguminous protein is disproportionately small, and the non-leguminous vegetable component disproportionately large; and

(3) That no pellagra develops in those who consume a mixed, well-balanced and varied diet.

The prevention and eradication of the disease, in the opinion of these authorities, depend essentially on the substitution of a mixed, well-balanced, varied diet for the restricted diet that the individual will be found to have consumed prior to the development of symptoms. (See also *Pathology and Bacteriology, supra.*)

Trachoma in the South.—A special study of trachoma, an important infectious disease of the eyes, was undertaken by the United States Public Health Service in the mountain sections of North and South Carolina. A previous study had revealed the prevalence of the disease in Kentucky, West Virginia and Virginia. The investigation was made by Dr. A. D. Foster and is reported in full in *Public Health Reports* for July 10, 1914, p. 1811. The following conclusions based on the survey are drawn:

1. Trachoma exists to some extent in several isolated localities in the mountain sections of North Carolina. Although not widespread, the disease is present in three different localities in different parts of the state.

2. Foreign immigration does not appear to have been a factor in the introduction of trachoma in the mountainous section of North Carolina.

3. The negro race in these two states is practically free from the disease.

A further study of this disease was conducted in the mountain sections of eastern Tennessee and northern Georgia by Dr. Charles A. Bailey. In the rural sections of Tennessee 16,950 persons, principally school children, were examined and 20.1 per cent. found to be suffering from trachoma. In Georgia the examination of 78,055 persons, mostly school children, showed only a case rate of 0.8 per thousand persons examined. Dr. Bailey outlines a series of steps to be taken to control and prevent the spread of this disease in *Public Health Reports*, Sept. 18, 1914, p. 2417.

The Treatment of Leprosy.—Dr. Victor G. Heiser of the United States Public Health Service has reported on the treatment of leprosy by the hypodermic use of a chaulmoogra oil mixture (*Public Health Reports*, Oct. 16, 1914, supp.). The studies were made in the Philippine Islands and 12 cases were placed under treatment. The net results show 11 per cent. apparent cures and 44 per cent. apparent clinical recoveries, while 33 per cent. show marked improvement and only 11 per cent. slight evidence of improvement. Dr. Heiser states that the results do not warrant a claim that anything like a specific for leprosy has been discovered, but points out that the treatment used shows more consistently favorable results than any other which has come to his attention. The method of treatment is being studied further.

Antityphoid Vaccination in the Army.—One of the most striking of prophylactic achievements during recent times was announced in May by Dr. Frederick F. Russell, Major of the U. S. Army Medical Corps. Typhoid fever is practically a thing of the past in the Army and this astonishing condition of affairs is due solely to antityphoid vaccination. Vaccination was made compulsory in 1909 and the results were very apparent the following year. Since this time methods and regulations have improved and the result is that for the year 1913,

in an army of 90,646, in all parts of the country and insular possessions, there were but three cases of the disease and no deaths. Two of these cases had not been vaccinated.

The following table justifies all of Dr. Russell's conclusions and claims:

Year	Strength of the Army	Cases	Deaths
1907.....	62,523	237	19
1908.....	74,692	239	24
1909.....	84,077	282	22
1910.....	81,434	198	14
1911.....	82,802	70	8
1912.....	88,478	27	4
1913.....	90,646	3	0

There have been absolutely no harmful results from vaccination. (*Jour. Am. Med. Assoc.*, May 2, 1914, p. 1371.)

The Home-Hospital Experiment for Treating Tuberculosis. — The New York Association for Improving the Condition of the Poor has made a report on the first year's work of its experiment in the treatment of tuberculosis among poor families in New York City. The general purpose of the experiment, which it is planned to extend over a three-year period, is to demonstrate "that sanitary housing, ample sunshine and good air, good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skillful medical care and constant nursing will prevent the spread of tuberculosis from the sick to the well members of the family, especially preventing the infection of the children." Twenty-seven families containing 135 persons, of whom 79 were tuberculous patients or suspects, were taken and removed to one of the modern tenement buildings in New York City. To quote from an article in the *Journal of the American Medical Association* (March 28, 1914, p. 1043):

> All members able to do so were required to work and to contribute to the support of the family. A depot containing all supplies needed was established, and goods were sold at practically cost prices. Direction and advice were given as to the amount and kind of supplies purchased in order to furnish abundant and proper nourishment for all the members of the families. Supervision was exercised over matters of work, rest, recreation, personal hygiene, etc., and medical and nursing attention were provided as necessary. The results of the experiment, it is believed, proved the feasibility and value of the plan. Eleven of the families, containing 23 patients, 12 of whom were wage-earners, were discharged. Six of the 11 families were rehabilitated physically, socially and economically, to the extent that each member was restored to health; all had learned the lessons of personal hygiene; the mothers had learned valuable lessons in home economy, as how to buy to advantage, what to cook and how to prepare it to secure the maximum of nourishment at minimum cost, and each family was able and earned sufficient to support itself under normal conditions. . . . The results in the infected cases were said to compare favorably with those of sanatorium treatment. . . . The cost of the experiment was considerably less than expected, but it was estimated that there was a saving of $11,000 over the cost of caring for the same number in sanatoriums, preventoriums and hospitals. It was found also, incidentally, that from $1,100 to $1,200 is the minimum income sufficient to maintain a normal standard of living for an average family of five in the Borough of Manhattan.

Details of this interesting experiment will be found in Publication 78 of the New York Association for Improving the Condition of the Poor, 105 East 22d St., New York City. The experiment is to be continued. (See also XV, *Constructive and Preventive Social Work*.)

The Friedmann Treatment for Tuberculosis.—The special board of officers of the Public Health Service who were appointed to investigate the Friedmann treatment for tuberculosis made its report during the year. They find that the claim of Dr. Friedmann to have originated a specific cure for tuberculosis is not substantiated by their investigations. They further state that Dr. Friedmann's claim that his inoculation of persons and animals with his bacillus is without harmful possibilities is disproved.

Reporting of Venereal Disease.—Among the noteworthy steps in advance during the year is the new state law in Iowa, which went into effect on Jan. 1, providing for and making compulsory the reporting of all cases of syphilis and gonorrhea. Every physician in the state, under penalty of a

$100 fine or 30-days' imprisonment and the possible revocation of his license, must submit a detailed report of every case of venereal disease he treats to the local board of health within 24 hours. The report contains such information as the sex and age of the patient, character of the disease and probable source of infection. The name of the person is not given, but the report is filled by number and a complete record is thus kept. Furthermore, the law makes any person who has a venereal disease and is convicted of knowingly transmitting or assuming the risk of transmitting the same to another person, liable to $500 fine or one-year's imprisonment or both, and also liable to the party injured in damages to be recovered in court.

Health Certificates Before Marriage.—The so-called eugenic-marriage law of Wisconsin is discussed in *Public Health Reports* for Sept. 11, 1914 (p. 2354), from which the following is quoted:

Aug. 2, 1913, the legislature of Wisconsin passed a law requiring "all male persons making application for license to marry" to be examined by a physician and file a certificate showing that they are "free from acquired venereal diseases so nearly as can be ascertained by physical examination and by the application of the recognized clinical and laboratory tests of scientific research," before a marriage license is issued. The law went into effect Jan. 1, 1914. . . . This law has attracted much attention, and its validity was seriously questioned, but the Wisconsin Supreme Court, in a case brought for the purpose of testing the law, has upheld it. . . . The law was attacked as being an unconstitutional interference with the natural right of individuals, as being unreasonably discriminatory in requiring males to be examined while making no such requirements as to females, and as being impracticable and unenforceable because physicians could not make the examination and tests required for the fee of $3, which is the maximum allowed by the law; but the case really turned on the question whether or not the language of the law required the application of the Wassermann test. It was conceded that if it was necessary to apply the Wassermann test the law could not be enforced because few physicians had the equipment or skill required, and it could not be made for the statutory fee of $3. The majority of the Court held that the legislature did not intend to require the Wassermann test, but contemplated only a physical examination and such tests for venereal diseases as the practicing physician with an ordinarily good equipment could make. All of the judges admitted or assumed the right of the state to regulate the marriage relation, but there is a divergence of opinion as to the wisdom of the law and the practical effects of its operation.

Habit-Forming Drugs and Their Relation to the Public Health.—As the result of various papers on the habit-forming drug question before the American Public Health Association, the following important resolution was adopted at the annual meeting in December:

Whereas, the use of habit-forming drugs such as opium, cocaine, chloral and similar drugs in this country is increasing with such appalling rapidity as to have assumed the proportions of a national evil; and

Whereas, the effects of these drugs are admittedly prejudicial to health, community welfare and race development; and

Whereas, it is evident at the present time that there exists no widely efficient control of this evil, federal, state, municipal, or otherwise; therefore be it

Resolved, that the president be empowered to appoint a standing committee of five (5) members which shall be known as the Committee on Habit-Forming Drugs and whose duties shall be as follows:

1. The collection of all available accurate data relative to narcotism in the United States, in connection with which the Committee will endeavor to learn as far as may be practicable the attitude of the newspaper press with respect to advertisements of preparations of such drugs, coöperating in such inquiry with the American Newspaper Publishers' Association in so far as may be deemed expedient.

2. A summary of existing anti-narcotic legislation in this country.

3. The preparation of a full report, to be presented at the next annual meeting of the Association, which shall have as its objects the presentation of existing facts; recommendations for the control of the present alarming situation as the committee may deem advisable and the outlining of such laws as shall control the importation, production, manufacture, sale and distribution of habit-forming drugs.

A number of important papers on this subject have appeared in *Public Health Reports* during the year. The bill known as the Harrison Anti-Narcotic Act was passed by Congress in December. This bill is intended primarily as a revenue measure but undoubtedly it should assist in making local regulatory measures easier to enforce.

New Regulations for Federal Meat Inspection.—The new meat-inspection regulations governing the slaughtering of cattle, sheep, swine and goats, and the preparation of meat food products in inspected establishments were signed by the Secretary of Agriculture on July 15. All the regulations became effective Nov. 1, except those governing imported meats, which go into effect Jan. 1, 1915. The Department of Agriculture is limited by law to jurisdiction over the slaughtering and packing establishments which sell their products in interstate or foreign commerce. These establishments slaughter 60 per cent. of the meat used in the United States. The new regulations provide that inspectors shall make a rigid ante-mortem inspection, and if they find clear evidence in the live animal of the existence of a disease which unfits its meat for food, they shall condemn the animal and prevent its entry for slaughter into the food-preparing departments of the establishment. The animal so condemned must be slaughtered in a separate place and put at once into the denaturing tank to be turned into fertilizer or other non-edible products.

In view of the present shortage and high prices of meat, and the fact that every pound of meat that is condemned necessarily adds to the cost of producing meat that is passed, the new regulations provide measures whereby the packers can sterilize and cook thoroughly certain classes of meat and sell it in cans or sealed containers, labeled plainly "Second-class, Sterilized." The regulations governing the sanitary condition of packing establishments, the cleanliness of employees, and the care of utensils and instruments have been redrafted into a series of definite rules.

Bacteriological Standard for Drinking Water.—The special commission appointed by the Secretary of the Treasury in 1913 to determine a bacteriological standard for drinking water supplied to the public by common carriers in interstate commerce reported during the year a bacteriological standard which was adopted by the Treasury Department. The standard indicates the number and kinds of bacteria which shall be permissible. The report of the commission is to be found in *Public Health Reports* for Nov. 6, 1914, p. 2959.

Southern Health Exhibition.—In connection with the annual meeting of the American Public Health Association which was held in Jacksonville in December, the Southern Health Exhibition was conducted. The exhibits gathered together from the leading southern cities and nearly all of the southern states brought a new appreciation of the southern health problems and their many complications. The exhibit was unusually attractive and instructive and was well attended. It is certain that the benefits derived will redound to the public-health welfare of the southern states.

VITAL STATISTICS

Extension of the Registration Area.—The Bureau of the Census was unable to complete the report on mortality statistics for 1913 for publication during the year. Through the courtesy of the Bureau, however, we are able to present the main features of the bulletin in press at the end of the year.

The registration area for deaths is composed chiefly of those states in which the registration under state laws is sufficiently complete so that transcripts are obtained by the Bureau of the Census as the basis for the annual compilation of mortality statistics, but certain cities in non-registration states are also included, the registration of deaths in these cities being conducted under local ordinances. It will be seen in the table (p. 712) that the registration area for deaths now embraces nearly two-thirds (65.1 per cent.) of the to-

tal population of continental United States, but less than two-fifths (38.6 per cent.) of the land area of the country is represented.

The following table shows the growth of the registration area and the death rate therein of the United States up to the close of 1913:

Year	Population			Deaths[1] in Registration Area	
	Continental United States	Registration Area		Number	Rate per 1,000 Population
		Number	Per cent.		
Census year 1879–1880	50,155,783	8,538,366	17.0	178,645	19.8
Census year 1889–1890	62,622,250	19,659,440	31.4	386,212	19.6
Census year 1899–1900	75,994,575	28,807,269	37.9	512,669	17.8
Calendar year 1900		30,765,618	40.5	539,939	17.6
Calendar year 1901	77,747,402	31,370,952	40.3	518,207	16.5
Calendar year 1902	79,365,396	32,029,815	40.4	508,640	15.9
Calendar year 1903	80,983,390	32,701,083	40.4	524,415	16.0
Calendar year 1904	82,601,384	33,345,163	40.4	551,354	16.5
Calendar year 1905	84,219,378	34,052,201	40.4	545,533	16.0
Calendar year 1906	85,837,372	41,983,419	48.9	658,105	15.7
Calendar year 1907	87,455,366	43,016,990	49.2	687,034	16.0
Calendar year 1908	89,073,360	46,789,913	52.5	691,574	14.8
Calendar year 1909	90,691,354	50,870,518	56.1	732,538	14.4
Calendar year 1910	92,309,348	53,843,896	58.3	805,412	15.0
Calendar year 1911	93,927,342	59,275,977	63.1	839,284	14.2
Calendar year 1912	95,545,336	60,427,247	63.2	838,251	13.9
Calendar year 1913	97,163,330	63,298,718	65.1	890,848	14.1

[1] Exclusive of stillbirths.

In the year 1912, as reported in the Year Book for 1913 (p. 746), the only addition to the registration area was nine cities in Kansas. In 1913 the state of Virginia was added, raising the percentage of population embraced in the registration area from 63.2 in 1912 to 65.1, and the percentage of geographical land area from 37.2 in 1912 to 38.6. The total number of registration cities in non-registration states in 1913 was 41, 20 of which were in the two states of Illinois and Kansas. In 1914 Georgia and South Carolina enacted excellent laws for the registration of births and deaths and will shortly be included in the registration area.

Death Rates.—The death rate of the registration area for 1911 (14.2 per 1,000) was the lowest recorded up to that time. In 1912 the rate fell to the new low record of 13.9. The rate in 1913 (14.1) was slightly higher than that of 1912 but lower than any rate previously recorded. The death rates for the registration area, the registration states (both urban and rural districts), and for all registration cities were higher for 1913 than for 1912; for the registration cities in non-registration states, however, the 1913 rate was exceeded by that for 1912. It will be noted from the table that there has been a more or less steady decrease in the death rate from the earlier to the later years. The annual crude death rate per 1,000 population, for all registration states and cities of 100,000 population or over, for the years 1906-10, 1912, and 1913, are given in the table on the following page.

It must be remembered in comparing crude death rates that such figures are affected by peculiarities of the distribution of population. Color, race, sex, and age must be considered. An area having a large proportion of persons at the most healthful ages will normally show a lower general death rate than a population with larger proportions of very young children and of elderly persons. This caution is especially necessary in comparing the death rate for cities of 100,000 population. The rates shown for the large American cities are all low and without exception indicate a very favorable mortality. The high rates shown for Birmingham, Washington, Atlanta, New Orleans, Baltimore, and other cities of the South, are due to the large proportion of col-

ANNUAL CRUDE DEATH RATES PER 1,000 PERSONS LIVING, 1906–13

United States	Annual Average 1906–10	Death Rate from All Causes[1] per 1,000 Population	
		1912	1913
Registration area	15.1	13.9	14.1
Registration states[2]	15.0	13.6	13.9
Urban districts	16.3	14.7	15.0
Rural districts	13.4	12.4	12.7
Registration cities	16.2	15.0	15.2
In non-registration states	15.9	16.6	16.3
Registration states:			
California	13.9	14.2	14.5
Colorado	14.3	11.6	11.5
Connecticut	15.6	14.9	15.0
Indiana	13.0	13.0	13.3
Kentucky	[3]	12.9	13.1
Maine	16.2	15.5	15.3
Maryland	16.0	15.5	16.2
Massachusetts	16.1	15.0	15.0
Michigan	13.6	13.4	13.9
Minnesota	[4]	9.5	10.4
Missouri	[3]	12.6	12.4
Montana	[4]	10.1	12.0
New Hampshire	17.2	16.4	17.1
New Jersey	15.4	14.1	14.3
New York	16.4	15.0	15.0
North Carolina[5]	[4]	17.3	16.8
Ohio	[4]	13.4	13.8
Pennsylvania	15.5	14.0	14.6
Rhode Island	16.7	15.2	15.0
Utah	[4]	9.9	11.0
Vermont	16.1	15.2	15.8
Virginia	[3]	[3]	13.9
Washington	[4]	7.9	8.5
Wisconsin	[4]	11.3	11.5
Registration Cities of 100,000 Population or over in 1910			
Birmingham, Ala.	[4]	17.4	17.4
Los Angeles, Cal.	14.8	14.7	15.0
Oakland, Cal.	15.4	12.8	12.5
San Francisco, Cal.	16.1	15.6	15.9
Denver, Colo.	17.5	14.2	13.7
Bridgeport, Conn.	15.5	13.9	14.9
New Haven, Conn.	17.3	16.5	15.9
Washington, D. C.	19.6	18.3	17.3
Atlanta, Ga.	19.4	18.0	17.4
Chicago, Ill.	14.9	14.8	15.1
Indianapolis, Ind.	15.2	15.0	15.7
Louisville, Ky.	17.4	16.4	16.2
New Orleans, La.	21.7	20.1	19.9
Baltimore, Md.	19.5	18.2	18.5
Boston, Mass.	17.9	16.4	16.4
Cambridge, Mass.	15.1	13.0	13.5
Fall River, Mass.	19.7	16.2	17.2
Lowell, Mass.	19.4	17.4	15.9
Worcester, Mass.	17.1	16.2	15.8
Detroit, Mich.	14.8	15.5	17.3
Grand Rapids, Mich[6]	13.3	13.0	13.3
Minneapolis, Minn.	11.0	10.4	11.6
St. Paul, Minn.	11.0	10.2	11.0
Kansas City, Mo.	14.6	15.2	14.8
St. Louis, Mo.	15.6	14.9	14.9
Omaha, Neb.	13.8	13.2	13.9
Jersey City, N. J.	17.7	14.0	14.6
Newark, N. J.	17.2	14.3	14.4
Paterson, N. J.	15.7	14.0	13.5
Albany, N. Y.	18.6	20.1	19.8
Buffalo, N. Y.	16.0	14.8	15.8
New York, N. Y.	16.9	14.5	14.3
Bronx Borough	17.4	13.2	13.9
Brooklyn Borough	16.3	14.2	13.9
Manhattan Boro.	17.4	14.9	14.6
Queens Borough	14.9	13.4	13.8
Richmond Boro.	18.6	16.8	16.9
Rochester, N. Y.[6]	14.7	14.6	14.6
Syracuse, N. Y.	15.2	15.2	15.7
Cincinnati, Ohio	18.1	16.6	16.9
Cleveland, Ohio	14.1	13.7	14.2
Columbus, Ohio	15.1	14.4	15.3
Dayton, Ohio	15.5	15.1	16.0
Toledo, Ohio	14.9	15.8	16.2
Portland, Ore.	10.3	9.5	9.5
Philadelphia, Pa.	17.7	15.3	15.7
Pittsburgh, Pa.	18.0	15.9	17.1
Scranton, Pa.[6]	16.3	14.6	14.8
Providence, R. I.	17.6	15.8	15.2
Memphis, Tenn.[6]	20.6	21.7	20.8
Nashville, Tenn.	19.3	19.3	17.8
Richmond, Va.	22.5	20.7	20.4
Seattle, Wash.	9.8	8.1	8.4
Spokane, Wash.	12.8	8.4	8.9
Milwaukee, Wis.	13.7	13.0	12.7

[1] Exclusive of stillbirths.
[2] Includes District of Columbia.
[3] Non-registration.
[4] Figures not available for entire period.
[5] Includes only municipalities having a population of 1,000 or over in 1900.
[6] Rates too low, some deaths of infants being omitted.

ored population, which under the conditions at present existing has practically always a much higher mortality than the white population. The low death rates shown for Seattle, Portland and certain other cities are dependent to some extent on the favorable age distribution of the population. With the report for 1911, the Bureau of the Census began the pub-

lication of "corrected" or "standardized" death rates, which permit an approximately exact comparison of the mortality of different localities (*A. Y. B.*, 1913, p. 746).

Causes of Death.—The death rates for certain important causes of death per 100,000 population in the registration area of the United States from 1901 to 1913 are given in the following table, compiled from the census report for 1913:

DEATH RATES PER 100,000 POPULATION FROM IMPORTANT CAUSES OF DEATH

	Annual Average, 1901 to 1905	Annual Average, 1906 to 1910	1910	1911	1912	1913
Typhoid fever	32.0	25.6	23.5	21.0	16.5	17.9
Malaria	4.8	2.6	2.2	3.0	3.1	2.5
Smallpox	3.4	0.2	0.4	0.2	0.3	0.2
Measles	9.0	10.8	12.3	10.0	7.0	12.8
Scarlet fever	11.0	10.6	11.6	8.8	6.7	8.7
Whooping cough	10.9	11.5	11.4	11.3	9.3	10.0
Diphtheria and croup	29.6	22.4	21.4	18.9	18.2	18.8
Influenza	19.9	16.4	14.4	15.7	10.3	12.2
Dysentery	8.6	6.5	6.4	5.2	4.4	5.1
Erysipelas	4.5	4.2	4.5	4.2	3.8	4.0
Rabies	0.1	0.2	0.1	0.1	0.1	0.2
Tetanus	3.5	2.7	2.5	2.3	2.2	2.2
Pellagra	[1]	0.2	0.7	1.1	1.1	1.6
Tuberculosis, all forms	192.6	168.7	160.3	158.9	149.5	147.6
Tuberculosis of the lungs[2]	170.7	146.8	139.7	138.0	129.8	127.7
Tuberculous meningitis	8.9	9.1	8.6	8.8	8.4	8.6
Syphilis	4.1	5.4	6.0	6.4	6.5	7.2
Cancer and other malignant tumors	67.9	72.6	76.2	74.3	77.0	78.9
Diabetes	11.5	13.7	14.9	14.9	15.0	15.3
Leukemia	1.2	1.5	1.6	1.6	1.7	1.8
Alcoholism (acute or chronic)	6.1	5.8	5.4	4.9	5.3	5.9
Meningitis (total)	31.7	19.4	14.2	12.3	11.5	10.4
Acute anterior poliomyelitis (infantile paralysis)	[3]	[3]	2.7	1.8	1.9	1.4
Apoplexy	69.6	71.7	73.7	74.7	75.7	74.6
Paralysis without specified cause	20.1	16.1	14.4	10.7	10.1	10.7
Epilepsy	4.4	4.2	4.2	3.9	4.1	4.2
Diseases of the circulatory system (total)	161.2	177.7	185.9	185.3	190.3	185.9
Organic diseases of the heart	124.2	133.2	141.5	140.9	142.6	138.6
Diseases of the respiratory system (total)	220.5	188.1	187.3	168.1	165.8	164.3
Acute bronchitis	21.4	15.2	13.4	10.9	11.1	10.4
Chronic bronchitis	15.4	11.1	10.0	8.6	8.1	7.6
Bronchopneumonia	32.9	40.4	47.1	44.5	47.0	49.1
Pneumonia (total)	125.5	103.0	100.6	89.2	85.2	83.2
Pleurisy	4.6	4.1	4.0	3.6	3.3	3.5
Diseases of the digestive system (total)	195.2	193.2	194.6	166.3	158.2	163.2
Ulcer of the stomach	2.9	3.6	4.1	3.6	3.8	4.0
Diarrhea and enteritis (under 2 years)	89.0	96.2	100.8	77.4	70.3	75.2
Diarrhea and enteritis (over 2 years)	20.2	16.7	16.6	13.7	13.7	15.0
Appendicitis and typhlitis	11.0	11.2	11.4	11.6	11.6	12.1
Hernia, intestinal obstruction	13.0	12.9	12.4	11.9	11.9	11.6
Cirrhosis of the liver	14.4	14.3	13.9	14.0	13.5	13.4
Simple peritonitis (nonpuerperal)	10.8	6.1	4.5	4.0	3.2	2.7
Acute nephritis	9.6	10.1	10.5	10.0	10.6	10.4
Bright's disease	87.4	87.4	88.5	87.5	92.5	92.5
Puerperal septicemia	6.3	6.8	7.2	7.4	6.5	7.2
Suicide	13.9	16.0	16.0	16.2	16.0	15.8
Accident	84.9	86.0	84.3	84.6	82.4	85.3
Homicide	2.9	5.9	5.9	6.6	6.5	7.2

[1] Less than one-tenth of 1 per 100,000 population.
[2] Includes acute miliary tuberculosis.
[3] Not separately reported.

International Statistics.—In the following tables, taken from the latest *Annual Report* of the Registrar-General of England and Wales, are given birth and death rates in the principal countries. The data of death rates in the world's principal cities in 1912, given in the YEAR BOOK for 1913 (p. 749), are the latest now available.

ANNUAL CRUDE DEATH RATES IN PRINCIPAL COUNTRIES, PER 1,000 PERSONS LIVING, 1881–1912

(Annual Report, Registrar-General of England and Wales, 1912)

Countries (arranged in order of rates in 1901–5)	Quinquennial Periods						Years		
	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1910	1911	1912
Russia (European)	35.4	33.2	35.8	31.9	30.9	.....	.....	.....	.....
Chili	26.9	35.2	32.6	28.8	30.2	31.3	32.5	31.1	29.7
Ceylon	.....	25.1	28.3	27.0	26.7	30.8	27.3	34.8	32.4
Hungary	33.1	32.1	31.8	27.9	26.4	25.0	23.6	25.1	23.3
Spain	32.6	30.9	30.1	28.8	26.0	24.3	23.3	23.2	21.8
Roumania	26.2	28.7	31.0	27.4	25.5	26.0	25.2	25.7	22.9
Austria	30.1	28.9	27.9	25.6	24.2	22.3	21.2	21.9	20.5
Jamaica	.....	23.5	22.0	22.1	22.6	24.4	23.1	22.1	25.1
Bulgaria	17.7	18.9	27.8	23.9	22.5	.....	.....	.....	.....
Servia	24.5	25.9	28.9	24.8	22.4	24.3	22.1	21.8	21.1
Italy	27.3	27.2	25.5	22.9	21.9	21.0	19.6	21.4	18.2
Japan	.....	20.6	21.1	20.7	20.9	21.0	21.1	.....	.....
German Empire	25.3	24.4	23.3	21.2	19.9	17.5	16.2	17.3	.....
France	22.2	22.0	22.3	20.7	19.6	19.2	17.9	19.6	17.5
Prussia	25.4	24.0	22.8	21.0	19.6	17.3	16.0	17.2	15.5
Finland	22.2	20.0	20.5	19.0	18.0	17.4	16.6	16.5	16.3
Ireland	18.0	17.9	18.5	18.1	17.6	17.3	17.1	16.5	16.5
Switzerland	21.3	20.4	19.8	18.1	17.5	16.0	17.1	15.8	.....
Belgium	20.6	20.2	20.1	18.1	17.0	15.9	15.2	16.4	.....
Scotland	19.6	18.8	19.0	18.0	17.0	16.1	15.3	15.1	15.3
England and Wales	19.4	18.9	18.7	17.7	16.0	14.7	13.5	14.6	13.3
The Netherlands	21.4	20.5	19.6	17.2	16.0	14.3	13.6	14.5	12.3
Sweden	17.5	16.4	16.6	16.1	15.5	14.3	14.0	13.8	14.2
Denmark	18.4	18.7	18.6	16.4	14.8	13.7	12.9	13.6	13.0
Norway	17.2	17.0	16.8	15.6	14.5	13.8	13.5	13.2	13.4
Ontario, Province of	11.4	11.0	10.6	11.6	13.0	14.0	14.0	12.6	12.4
Australian Commonwealth	15.7	14.8	13.3	12.7	11.7	10.7	10.4	10.7	11.2
New Zealand	10.9	9.9	10.1	9.6	9.9	9.7	9.7	9.4	8.9

ANNUAL BIRTH RATES IN PRINCIPAL COUNTRIES, PER 1,000 PERSONS LIVING, 1881–1912

(Annual Report, Registrar-General of England and Wales, 1912)

Countries (arranged in order of rates in 1901–5)	Quinquennial Periods						Years		
	1881–1885	1886–1890	1891–1895	1896–1900	1901–1905	1906–1910	1910	1911	1912
Russia (European)	49.1	48.2	48.2	49.3	47.7	.....	.....	.....	.....
Bulgaria	37.2	35.9	37.5	41.0	40.6	.....	.....	.....	.....
Roumania	41.8	40.9	41.0	40.2	39.4	40.3	39.8	43.0	43.4
Jamaica	.....	36.8	38.6	38.9	39.0	37.5	38.6	39.0	38.8
Ceylon	.....	30.3	31.7	37.2	38.8	37.5	39.0	37.9	33.3
Servia	46.3	43.7	43.3	40.1	38.7	.....	38.5	36.2	38.0
Hungary	44.6	43.7	41.7	39.4	37.4	36.7	35.7	35.0	36.3
Chili	39.1	35.5	37.0	35.0	36.4	38.3	38.4	38.5	38.7
Austria	38.2	37.8	37.4	37.3	35.6	33.6	32.5	31.4	31.3
Spain	36.4	36.0	35.3	34.3	35.3	33.6	33.1	31.2	32.6
Prussia	37.4	37.3	36.9	36.5	34.8	32.3	30.5	29.4	28.9
German Empire	37.0	36.5	36.3	36.0	34.3	.....	29.9	28.6	.....
Italy	38.0	37.5	36.0	34.0	32.6	32.4	32.9	31.5	32.4
Japan	.....	28.5	28.6	31.1	31.7	.....	33.9	.....	.....
The Netherlands	34.8	33.6	32.9	32.1	31.5	29.6	28.6	27.8	28.1
Finland	35.5	34.5	31.8	32.6	31.3	31.0	30.2	29.1	29.1
Scotland	33.3	31.4	30.5	30.0	29.2	27.6	26.2	25.6	25.9
Denmark	32.4	31.4	30.4	30.0	29.0	28.2	27.5	26.7	26.7
Norway	31.2	30.8	30.2	30.1	28.6	26.3	26.1	25.9	25.4
England and Wales	33.5	31.4	30.5	29.3	28.2	26.2	25.1	24.4	23.8
Switzerland	28.6	27.5	27.7	28.5	27.8	.....	25.0	24.1	.....
Belgium	30.7	29.3	28.9	28.9	27.7	.....	23.7	22.9	.....
New Zealand	36.3	31.2	27.7	25.7	26.6	27.1	26.2	26.0	26.5
Australian Commonwealth	35.2	35.2	32.4	27.7	26.4	26.7	26.7	27.2	28.7
Sweden	29.4	28.8	27.4	26.9	26.1	25.5	24.8	24.0	23.7
Ireland	23.9	22.8	23.0	23.3	23.1	23.4	23.3	23.2	23.0
Ontario, Province of	22.4	22.0	19.9	20.1	21.8	23.7	24.9	22.6	22.4
France	24.7	23.1	22.3	21.9	21.2	19.9	19.7	18.7	19.0

XXIX. RELIGION AND RELIGIOUS ORGANIZATIONS

CHRISTIAN CHURCHES

H. K. Carroll

ANGLICAN COMMUNION

World Conference on Faith and Order.—Considerable progress, it is announced, has been made in 1914 toward a successful issue of this Conference. Commissions have now been appointed by 49 communions in North and South America, Europe, Asia, Australia and Africa. Others are in process of appointment, so that it may be said that coöperation is assured on the part of substantially the whole Anglican communion throughout the world, of the leading Protestant communions in English-speaking countries and of the Old Catholic churches of Europe. Important dignitaries of the Russian Church have given assurances of their aid toward the participation by that Church, and an increasing number of Roman Catholics, some of them of high rank, have expressed interest in the movement.

Plans had been made to send a deputation in 1914 to present the matter to the communions of the Continent of Europe and of the East. This deputation was to consist of the Bishop of Chicago, the Bishop of Connecticut, the Bishop of Pennsylvania, the Rev. William T. Manning, D. D., and Dr. John R. Mott. They were to have arrived in England at the end of August and influential men in every country of Europe had promised their help in securing a favorable opportunity for the presentation of the matter. From the correspondence relative to the arrangements for their visit, it appeared that the proposal had become known in many parts of the Continent and articles had been published about it in Germany, Finland and Hungary. The European War has postponed the approach to Europe.

One of the lessons of the European War which is convulsing half the world, as seen by advocates of the proposed Conference, is that only by unity in the one Lord Jesus Christ, the Prince of Peace, can Christians help to make the Kingdoms of the world the Kingdom of our Lord and of His Christ, and it is believed that the terrible destruction of the war will make Christians see more clearly the need of a reunited Christianity. The war will suspend for the present the world-wide plans for the Conference. Meantime, the Commission asks that prayer be offered that the Holy Spirit direct all the preparations for the Conference and hasten the time when this effort for Christian unity may be resumed, that knowledge of the plans and purposes of the Conference be spread in the United States, and that small gatherings of members of different communions, in the spirit of Christian love, be promoted. Referring to the Kikuyu controversy the Commission says:

> From the mission field the long outstanding problem of Christian unity has been brought . . . and set directly in the way before all Christian communions. It cannot longer be passed by. The great interests which Christian people of every name have most at heart call for its solution. But solution cannot be secured by surrender. It must be preceded by conference. Before conference there must be truce.

The Commission therefore calls upon all to join in "a Truce of God."

The Kikuyu Controversy.—The Kikuyu controversy arose on the com-

plaint of the Anglican Bishop of Zanzibar of the action of two other Anglican bishops in Africa, the bishops of Mombasa and Uganda. In a conference at Kikuyu, Africa, with representatives of other missions the bishops agreed to a common policy, including transfer of communicants from one to another of the federated churches, and they united in celebrating, under the leadership of the Bishop of Mombasa, the Anglican rite of communion in a Presbyterian church and administered it to representatives of other churches. The Archbishop of Canterbury referred the complaint, in accordance with the usual procedure, to the Central Consultative Body of Bishops of the Anglican Church, which met in July, but is not expected to give any utterance on the subject until the close of the European War. The Archbishop asked the Consultative Body, which consists of 14 bishops, appointed by the Lambeth Conference of 1908, including bishops of colonial churches, whether, in their opinion, "due consideration being given to precedent and to all the facts of the case, the action of the bishops who arranged and conducted the admittedly abnormal service was consistent or inconsistent with principles accepted by the Church of England." The complaint against the two Bishops of Mombasa and Uganda, who belong to the missions of the Church Missionary Society, while Zanzibar and the dioceses of Northern Rhodesia and Likoma are supported by the Universities' Mission, immediately plunged the Church of England into an extensive controversy, and letters to daily and weekly newspapers, reviews, pamphlets and books have made their appearance in profusion. Bishops have written, some in support of the position of the Bishop of Zanzibar, notably the Bishops of Chichester and Worcester, and some in support of the Bishops of Mombasa and Uganda, among the latter being the Bishop of Durham.

Disestablishment of the Church of Wales.—The Anglican Church in Wales has ceased to be a body "established by law." The House of Lords refused to approve the bill for disestablishment which, however, became a law under the new regulations of the British constitution. Taxation for the support of the Church ceases, Parliamentary ecclesiastical law falls, the cathedrals and ecclesiastical corporations will be dissolved and the bishops will cease to be members of the House of Lords, and bishops and clergy will not be members of the Canterbury Convocation. Of the annual income of $1,480,000 which the Church enjoyed from endowments, the new law takes away $862,500 as representing national property, and gives it to the Welsh University and to county councils for public and charitable purposes. (See also IV, *The United Kingdom.*)

The Anglican and the Russian Orthodox Church.—Early in the year a Church of England clergyman read before the Holy Synod of Russia a paper expressive of a desire to bring about closer relations between the two churches. The Holy Synod appointed a delegation including six archbishops to visit England and explain the essentials and organization of the Church of Russia, instructing them to be cautious on the question of union. The chairman of the delegation is said to hold that there are two obstacles to union, in the retention by the Anglican Church of certain Roman Catholic dogmas and in lack of evidence that the Church has apostolic succession.

BAPTIST

Southern Baptist Convention.—The Southern Baptist Convention, representing the most numerous Baptist body in the world, held its annual session in Nashville, Tenn. A report showed progress toward the establishment of a theological seminary for the training of colored Baptist ministers. The white Baptists propose to assist the National Baptist Convention in securing such an institution. A declaration on the subject of Christian union was adopted, which sets forth the principles for which the churches of the Convention stand: (1) conscious personal relation of the individual to God, which excludes infant baptism; (2) the change known as the "new birth," conditioned upon conscious acceptance of Christ; (3)

the initial ordinance, baptism, commanded by Christ; (4) the nature of spiritual fellowship, involving the independence of the local church; (5) the relation of the Church to the State, requiring complete separation. Rejoicing in the measure of agreement between Christian bodies that now obtains, the statement affirms that Christian union cannot be forced or made to order, nor promoted by compromise. Unity of conviction must precede all such movements.

Northern Baptist Convention.—The Northern Baptist Convention held its annual session in Boston, and considered its various denominational interests, missionary, educational, publication, etc. A resolution asking Congress to submit a constitutional amendment prohibiting the use of funds by nation, state, or city in aid of sectarian schools was adopted after some discussion, in which the question was raised whether an exception might be made to cover the commitment, as in New York, of delinquent children to reform schools, Protestant, Catholic or Jewish, aided by the state. Foreign-mission reports stated that Baptists are coöperating satisfactorily with Presbyterians in Japan, and with various bodies, Methodists, Friends and others, in China.

CONGREGATIONAL

Proposed Reunion of the Congregational and Unitarian Churches.—At a meeting of the Massachusetts General Convention of Congregational ministers, Rev. Thomas Van Ness, Unitarian, urged that the Congregational and Unitarian churches be reunited, the name Unitarian to be dropped and the Congregationalists to relinquish their doctrinal and creedal statements. The proposal was welcomed by the Rev. Samuel C. Bushnell, on the part of Congregationalists.

Missions.—Prof. Edward C. Moore, of Harvard University, has been elected president of the American Board, the foreign mission organization of the Congregational Churches, in place of Samuel B. Capen, deceased.

LUTHERAN

Lutheran Coöperation.—Coöperation seems to have been the tendency in Lutheran circles during 1914. The most significant event was the gathering of representatives to plan for a united effort to celebrate in a fitting manner the quadricentennial of the beginning of the Protestant Reformation under Martin Luther. This celebration will take place in 1917. A feature proposed is the simultaneous meeting of the general bodies, the General Synod, the General Council, the United Synod South and the Synodical Conference, in one great center, the simultaneous meetings to close with a great consolidated mass meeting of all branches of Lutherans such as has never been held on this continent.

The text of a common service book and hymnal for all Lutherans in America using the English language was practically completed during the year. Overtures were made to the General Council, which has had a complete and extensive Lutheran graded system of Bible textbooks for about 20 years, to secure through this system as the starting point a common Sunday-school literature completely graded for the entire Lutheran Church in America.

Lutherans of all synods in America coöperated also in reaching a helping hand across the seas to sustain and conserve the numerous foreign missions of their German brethren in India and in other countries. The societies in Germany, through the European War, found their work abroad beyond their power to support and supervise.

The educational interests of the church had unusual emphasis during the year. Almost without exception the 41 colleges and the 29 theological seminaries added either to equipment or endowment. The aggregate approximated a million dollars. In Canada two colleges were founded and the theological seminary established two years ago was placed on a sound basis with adequate equipment for all present needs.

In the sphere of home missions the completion of "The Unification Plan" of the General Council was the most significant move. It means the placing of all English missions under a central board with a national outlook. In fact, as this board operates

extensively in Canada, it is an international home-missions propaganda.

Statistics of Lutheran Bodies.—According to the latest available statistics there are 65 district synods, of which 14 are independent and 51 are divided into four general bodies. There are 9,162 ordained ministers, 15,739 congregations, 2,366,579 communicant members and 3,623,379 baptized members. The church property is valued at $92,747,509. The income was $15,267,957. The benevolent offering of the churches, which does not include individual gifts and legacies, was $3,082,707.

There are 1,388 theological students in Lutheran seminaries; in the colleges 9,362. The inner-mission work of the Lutheran Church, which is similar to that which is generally called social service but which is more strictly evangelical and more closely identified with the church organization, is very extensive. It includes a total of 221 institutions caring for all classes of unfortunates. Much of this work is under the care of deaconesses, who were first introduced into America by the Lutheran Church through the efforts of the late Rev. Wm. A. Passavant, who was the real founder of Protestant hospital and orphan work in America.

Proposed Union of Norwegian Lutheran Bodies.—Three Lutheran bodies of Norwegians, known as the United Norwegian Synod, the Norwegian Synod and Hauge's Norwegian Synod, have been considering the question of uniting their forces in one synodical body. If this union takes place there would be a church of more than 1,200 ministers and some 300,000 communicants. At its meeting at Sioux Falls, S. D., in October, the Norwegian Lutheran Synod, second to the United Synod in numerical strength, voted in favor of the proposal by 347 to 172.

METHODIST

General Conference of the Methodist Episcopal Church, South.—This body held its quadrennial session in Oklahoma City, in May. The most interesting matter that came before it was the controversy concerning Vanderbilt University (*A. Y. B.*, 1913, p. 754). The Supreme Court of Tennessee had reversed the finding of the Court of Chancery to the effect that the Church has visitorial rights and that it was competent for the Board of Bishops, representing the Church, to insist upon the rejection of a proposed gift of a million dollars by Andrew Carnegie, because the acceptance of it would involve practically denial of the right of denominational control. The question before the General Conference was, what should be the attitude toward the institution in view of the decision. In the end, the General Conference, while insisting that the Church was the founder of the University and ought not to be deprived of its right of control, recognized the decision of the Court as final and decided to appoint a commission to transfer the rights ceded to the General Conference back to the patronizing conferences, to provide for the establishment of another biblical school or department of theology, and also, if it should be deemed advisable, to establish a university to be under control of the Church. The commission a few months later, accepting a benefaction of $1,000,000 from Asa G. Candler and lesser amounts from others, announced the establishment of Atlanta University, to be under the direction and control of the Methodist Episcopal Church, South. This may be regarded as the answer of the Church to the resistance of Vanderbilt University to denominational supervision. Bishop Candler, a brother of the chief benefactor, appointed as chancellor of the new institution, says the Theological School will be opened immediately in Wesley Memorial Church, Atlanta, and other schools will be added from time to time. A suitable site for the campus on which to erect needed buildings will be sought for. Other acts of the General Conference include approval of the plan of Methodist unification (see *infra*); approval of the Methodist Federal Council (see *infra*); adoption of a plan for dividing the Church into 11 districts and requesting the bishops to designate an official episcopal residence in each, some one bishop to be appointed to preside for the quadrennium in each of the three foreign districts;

retirement of Bishop A. W. Wilson on account of advanced age; rejection of requests for an extension of the four-year term of ministerial appointments and for the granting of laity rights to women. The episcopal address, which was opposed to granting laity rights to women, said that a majority of the women of the Church "look upon their relation to the work in the light of duties to be performed rather than of rights to be obtained." This question was before the General Conference in 1910 also and was given a negative answer. It was reported that the proposal sent down in 1910 for the change of the name of the Church to the "Methodist Episcopal Church of America," was not approved by the annual conferences, their vote being 1,310 for to 3,996 against. The Conference voted to require hereafter candidates for the ministry to promise to abstain from the use of tobacco, a rule that has long obtained in the Methodist Episcopal Church and other Methodist bodies.

The Unification of the Chief Bodies of Methodism.—The general plan of union agreed upon by a joint commission of the Methodist Episcopal, Southern Methodist Episcopal and Methodist Protestant Churches (*A. Y. B.*, 1912, p. 732) was considered and amended by the Southern General Conference by eliminating the provision for a quadrennial conference of Negro churches, ministers, and members, and then adopted. The action taken recognizes the plan proposed as tentative and yet as containing the basic principles on which such union should be effected, approves of union as feasible and desirable, and favors the organization of Negro Methodists into a separate body holding fraternal relations with the United Church. The plan, which was not considered by the General Conference of the Methodist Episcopal Church in 1912, will go before the Conference of 1916 as amended by the Southern General Conference, and also before the Methodist Protestant General Conference of 1916, for such action as these bodies may be disposed to take. In October a meeting of Negro ministers and laymen of the Methodist Episcopal Church was held at Nashville, Tenn., to consider what attitude should be taken by the colored constituency of that Church, numbering over 300,000. About 200 representatives, including editors, educators, district superintendents and ministers, attended the meeting and adopted a resolution approving of the plan of union, including the provision for a colored quadrennial conference. This action is regarded as significant.

Methodist Federal Council.—In accordance with the action of the General Conferences of the Methodist Episcopal Church and the Methodist Episcopal Church, South, there has been constituted by the concurrence of the two commissions on federation a Federal Council of Methodism, "with full power to hear and finally decide, without appeal from its decision, all cases of conflict and misunderstanding between the two episcopal Methodisms." The Federal Council will have jurisdiction in the settlement of questions which arise particularly in sections of joint occupancy, as, for example, the establishment of churches of either denomination in places already occupied by the other. A case in point is the proposed removal of a church from one part of the city of Atlanta to another, and the appropriation of $10,000 toward a new building by the General Committee of the Board of Home Missions of the Methodist Episcopal Church. Complaint was made by St. Mark's Methodist Episcopal Church, South, against the purchase of a new site in proximity to its own church and erection of a building thereon as involving conflict, "waste of means and forces in unseemly rivalry." The Federal Council will hear and determine this case, which has been attended already with much controversy.

Union of Methodist Protestant and United Brethren Churches.—The plan for the unification of these two bodies (*A. Y. B.*, 1913, pp. 753-4) was carried forward a step in 1914. A majority of the annual conferences and of the laymen of the Methodist Protestant Church having approved the plan, a special session of the General Conference of that body was called to meet in Columbus, O., in July to take further action. About two-thirds of the members of the General

Conference of 1912 attended, five of the annual conferences, including the oldest, the Maryland, refusing to send delegates. Twenty-four conferences out of 29 participated in the proceedings, which embraced approval of the basis of union, the appointment of a new commission for its further development, and an order for the reconvening of the Conference for a joint session with the General Conference of the other Church, if the vote of the laymen of the latter should prove favorable to unification, the joint session not to be held earlier than December 1, 1914, nor later than May 31, 1915. There is a division of opinion in the Methodist Protestant Church as to some features of the basis and also as to the legality of the special session of the General Conference. The proposed name, "United Protestant Church," is objected to as eliminating the word "Methodist," and it is held that the constitution has been violated in the method of ratifying the plan. It is said that union cannot be pushed at present without making three denominations instead of one.

Reunion of the Evangelical Association and the United Evangelical Church.—These are Methodistic bodies of German origin. They were divided in 1894 as the result of a controversy and commissions have lately been considering the question of reunion. The General Conference of the latter body was in session in October, and continued its commission, which is expected to have a joint session with the commission of the former body in the near future.

General Conference of Methodist Church of Canada.—The quadrennial session of this body was held in Ottawa in September, 1914. The question of chief importance was that of the projected union with the Presbyterian and Congregational churches, which has been pending 12 years (*A. Y. B.*, 1912, p. 740). The ministers and members of the Congregational churches have ratified by a large majority the basis of union; the Presbyterians also gave a majority in favor of it, but the opposition among the minority is quite strong and it has been judged inexpedient to try to force union at present. The Presbyterian committee, at the close of 1913, adopted a motion proposing further amendments to the basis of union and a general survey of church conditions throughout the country. The Methodist committee considered these proposals at a meeting in January, 1914, and resolved to pass them on to the General Conference. A Presbyterian delegation appeared before the General Conference at Ottawa, and asked that the Methodists wait patiently two years more, promising that the Presbyterian General Assembly would be ready in that year to give a definite and final conclusion. The action of the General Conference empowered its committee, in case the Presbyterian reply is favorable, to continue negotiations and if necessary to call a special meeting of the General Conference for the consummation of the union. The increase of immigration and of the tasks presented to the churches and the formation of union churches, particularly in the western provinces, are given as special reasons in favor of uniting the churches for conservation and concentration and economic use of forces. Dr. Carman, one of the general superintendents of the Church for more than 30 years, was retired at the age of 84, and but one general superintendent was elected, Rev. S. D. Chown, who has served four years. An attempt to have the limit of itinerant service enlarged beyond four years failed after a long and warm debate, very much to the disappointment of a large minority of ministers. Concerning international affairs the General Conference called attention to two great "spiritual victories," the decision of the United States to stand on the broadest interpretation of the Hay-Pauncefote Treaty and the action of Great Britain in going to war to fulfill its treaty obligations to Belgium, and expressed the opinion that these two noble acts will do much to create an "atmosphere of international confidence in the world."

International Epworth League Convention.—This body, representing various Methodist branches, including the Methodist Church of Canada, held its biennial session in Buffalo early in July. About 5,000 delegates were registered. World evangelism, social

service and increased efficiency of young people were the burden of the addresses.

PRESBYTERIAN

Northern Presbyterian Church.—At the General Assembly of the Northern Presbyterian Church, held in Chicago, Dr. Maitland Alexander, moderator, received reports of larger accessions to membership than in any previous year. There had been received during the year 93,000 on confession of faith. The budget to be raised for the nine boards of the Church during the coming year was fixed at $4,275,000. The affairs of the Home Mission Board, which have been under consideration two years or more, were taken up by the Assembly in a report proposing a plan of reorganization which was unanimously adopted. It increases the number of members of the Board and creates a council of representatives of the Synods, to meet annually for the consideration of the report of the Board and to make recommendations thereon to the General Assembly. The Church reports 1,458,085 communicants, a net increase of 42,213; 10,130 churches, a gain of 40, and 9,536 ministers, an advance of 126. The total receipts for all purposes aggregated $27,682,000, which was $1,388,000 more than in 1913. The receipts for foreign and home missions aggregated $3,396,000.

Southern Presbyterian Church.—The General Assembly of the Southern Presbyterian Church was held in Kansas City, Mo., Dr. William J. Martin serving as moderator. Three changes in the *Book of Church Order* were effected, the most important of which, perhaps, was that requiring that three-fourths of the presbyteries, instead of a majority, ratify any plan of union with another Presbyterian Church. A protest against the action of the Assembly in declaring for national prohibition of the manufacture and traffic in intoxicants was presented by 41 commissioners, on the ground that it was a deliverance on a political question and therefore contrary to the historic position of the Church. The statistical report for 1914 shows a small increase in the number of ministers and churches and about 10,000 in the number of communicants. The totals are, 1,819 ministers, 3,430 churches, 310,602 communicants. The contributions for all purposes aggregated $5,086,798, an advance of $314,720.

United Presbyterian Church.—The General Assembly of this body was held at New Castle, Pa., Dr. Joseph Kyle, moderator. The action of the Assembly on various union projects is given below. The statistics presented show that there are 1,167 ministers, a gain of 22, 1,126 churches, a decrease of three, and 148,220 communicants in the United States, an increase of 6,139. The contributions for the year reached an aggregate of $3,129,000, an advance of $180,200.

Declaration of Faith and Social Service.—A document prepared by a joint committee of the four Assemblies that met in Atlanta in 1913 (*A. Y. B.*, 1913, p. 755) was presented to each of the four Assemblies in 1914 and adopted. It declares that man's chief end is to glorify God and enjoy Him forever; that repentance and obedience to God underlie what is known as the work of social service; and that it is the duty of the Christian to be active in the various forms of social service.

Reformed Alliance Council.—This body, which includes seven Presbyterian and Reformed churches in the United States, held its fourth biennial session in Philadelphia in March. An overture from the General Assembly of the Presbyterian Church (Northern), asking for closer relations among all Presbyterian bodies, was considered, and action was taken requesting the supreme judicatories of the constituent bodies to authorize and direct the Council to formulate and report in 1916 a plan for effective federation of administrative agencies in home and foreign fields. When as many as four of the supreme judicatories act favorably upon the overture the Council is to appoint a committee to undertake the duties contemplated in the overture. The General Assembly of the Presbyterian Church (Northern) at its May meeting approved this overture, as did also the Southern Assembly. The United Presbyterian Assembly likewise took favorable action.

Union of Presbyterian and Reformed Churches.—The plan for the union of the Presbyterian Church (Northern) and the Reformed Church (German) (*A. Y. B.*, 1911, p. 742) has come to an end. In the latter body only 12 classes voted in favor of it to 37 against; in the former 207 presbyteries approved it and only three opposed it, leaving 85 to be heard from. In the opinion of the Reformed Church the time for organic union has not yet come; in the opinion of the Presbyterian Church it has come. Result, end of present negotiations, with the hope that a more comprehensive union may be brought about. The United Presbyterian General Assembly took action at its May meeting, not only approving the federation plan reported by the Reformed Alliance Council, but declaring that inasmuch as it had negotiated a basis of union with the Southern Church and had affirmed its desire for a larger union, the time had manifestly arrived when the expression of the Church should be sought in this matter. The Assembly therefore voted to submit to the presbyteries the following questions: (1) Shall the General Assembly of 1915 instruct a Committee to negotiate a basis of union with Churches of the Presbyterian and Reformed family? (2) Shall the United Presbyterian Church continue its separate and independent existence? These questions are also to be submitted to the vote of the various church sessions.

Union Between the United and Southern Churches.—The plan of union between these two bodies (*A. Y. B.*, 1913, p. 755) was submitted by the Southern Assembly to the presbyteries for their adoption or rejection. The United Assembly, having received memorials from several presbyteries advising that the plan be not sent down and in view of the fact that it did not seem to meet with much favor, decided not to submit it to the vote of the presbyteries, but to test the sentiment of the Church by sending down the larger proposal for the union of the whole Presbyterian and Reformed family.

Presbyterian and Methodist Union in Canada.—This plan has been pending several years. The Congregationalists and Methodists (see "Methodist," *supra*) have approved the plan and are ready to carry it out; but the Presbyterian Church has a considerable minority who are opposed to it. The Assembly considered and approved several amendments to the plan, which as amended was referred to the other bodies for consideration. If approved by them the Assembly of 1915 will be asked to send it down to presbyteries, sessions and congregations; then if they give a preponderating majority the union may be consummated. The action was carried by a vote of 286 to 109.

Presbyterian Union in Scotland.—Negotiations for the union of the Established Church and the United Free Church of Scotland have been proceeding for several years (*A. Y. B.*, 1913, p. 756) with prospect of success. The Assembly of the Kirk considered majority and minority reports on the subject. The latter laid emphasis on the importance of state connection and was earnestly supported, with a view to block the way of union. The majority report proposing a tentative basis was in the end adopted. This tentative basis includes, besides articles on the faith which will probably create no dissension, three articles on the civil question, which is crucial. One declares that the Kirk, while recognizing the civil authority as of divine appointment, subjects itself to no civil control in doctrine, worship, government or discipline; another, that the State should recognize this independence of the Church; and a third, that the Church has the inherent right to interpret or modify its confession as it may desire. Both reports, majority and minority, are to be submitted to the presbyteries for their opinion. There was also an attempt to defeat the project in the United Free Assembly by a motion that absolute equality before the civil law be demanded for all the churches. Against this position it was urged that at the moment when the Established Church was indicating its willingness to surrender many of its civil privileges, it was inopportune to pass the pending motion, which was defeated by a vote of ten to one. The negotiations will therefore be continued on the tentative basis.

REFORMED

General Synod of Reformed Church (German).—The eighteenth triennial session of the General Synod of the Reformed Church in the United States (German), was held in Lancaster, Pa., in May. The General Synod, while declaring that the proposal for union with the Northern Presbyterian Church (*A. Y. B.*, 1913, p. 760) had met with a decisive defeat in the classes and must be abandoned, recognized that the movement toward closer federation of Protestant Churches in America is well-nigh universal, and indicated its approval of it. It voted to encourage efforts toward coöperation between churches of the Presbyterian and Reformed family, and instructed its Committee on Church Union to open negotiations with the committee of the Reformed Church in America (Dutch), in accordance with a request to this effect from the General Synod of the latter body.

General Synod of Reformed Church (Dutch).—The General Synod of the Reformed Church in America (Dutch) at its annual meeting in June, received reports indicating that the revised constitution (*A. Y. B.*, 1913, p. 760) had been approved by 19 classes out of 34 voting, approved in part by 10, and disapproved by five. The General Synod, after discussion, decided to defer until 1916 the adoption of a resolution declaring the chapters as approved the constitution of the Church as far as they go, in the expectation that meantime other chapters may be approved.

ROMAN CATHOLIC

Death of Pope Pius X and Election of Pope Benedict XV.—The great event of the year in the Roman Catholic Church was the death of Pope Pius X in August and the election in September of his successor, Cardinal Della Chiesa, Archbishop of Bologna, who is to be known as Benedict XV. Cardinal Sarto, of Venice, the peasant Pope, known for his deep piety, sunny nature, and quiet tastes, did not have a long reign, only 11 years. His last days were troubled by the outbreak of the European War and his death was probably hastened by his anguish of mind over the calamity. He was a lover of peace and earnestly sought to influence the Emperor of Austria not to begin a war. His last labors were in the interest of peace. His successor is yet a young man, and was one of the newest cardinals created by Pius X. He is of noble birth and like his predecessor an apostle of peace. His first encyclical was an appeal to rulers to stop the carnage and ruin of the greatest war in history. He is a scholar, a diplomat, a close observer of events, and will devote to his duties a strong mind, vigorous health and a dominant spirit. His first appointee as Secretary of State, Cardinal Ferrata, was suddenly removed by death and Cardinal Gaspari was named to succeed him. The new Secretary is 62 years old.

Growth of Catholicism in the United States.—The Church continues to show large gains in priests, churches, and Catholic population. The net gain in population reported for 1913 was upward of 913,000. Part of this abnormal increase may be attributed to the full returns of Ruthenian Greek Catholics for the first time. Bishop Ortynsky, consecrated in 1907 Bishop of the Ruthenian Greek Catholic Church and residing in Philadelphia, reports in his jurisdiction, which embraces the United States, 500,000 Ruthenian Catholics, connected with 152 churches and 43 missions, which have 154 priests. There are nine states which have a Catholic population of over half a million each: New Jersey, 565,000; Wisconsin, 578,000; Michigan, 582,000; Louisiana, 585,000; Ohio, 781,000; Massachusetts, 1,396,000; Illinois, 1,462,000; Pennsylvania, 1,684,000; and New York, 2,885,000. The total Catholic population is 16,067,985, which according to the rule usually applied represents about 13,657,787 communicants. There are 18,568 priests and 14,657 churches and missions. The number of Catholics attending parochial schools is 1,429,859. Catholic observers, however, insist that though the Church is advancing it is doing so despite heavy losses. The *Northwestern Chronicle* says the archdiocese of New York reported a population in 1904 of 1,200,000 and notwith-

standing the fact that in the ensuing decade 2,000,000 Catholic immigrants landed in New York, the net increase reported for the period is only 219,000. In the same period the archdiocese of Cincinnati appears not to have added a soul to its total. Bishop McFaul of Trenton, N. J., said recently that the "little red school house and the Bible have nothing to fear from Catholics." What Catholics would like to have, he adds, is a provision allowing religious instruction to be given in the public schools. This could be done, he thinks, without violating any one's conscience.

The Federation and Religious Liberty in Mexico.—The Federation of Catholic Societies at its annual meeting in Baltimore adopted a memorial asking the United States not to recognize any administration in Mexico that does not guarantee religious liberty. Complaint was made of the severe persecutions which the Catholic Church suffers in the Mexican Republic, where Catholics are outraged in their most sacred convictions and where churches are desecrated and closed and bishops and priests robbed. The memorial was presented to the Secretary of State of the United States. It consists of two documents, one showing alleged atrocities committed by the Constitutionalists against priests, orders of brothers and sisters, and other citizens, who were expelled from Mexico; the other, setting forth that the Catholic clergy had maintained a neutral attitude.

Eucharistic Congress.—This annual congress, whose meetings attract wide attention, was held in Lourdes, France, in July. Ten cardinals, 200 archbishops and bishops, and thousands of priests and laymen attended the gathering and the procession was a great demonstration.

THE CHURCHES AND THE WAR

Peace Conference.—The effects of the European War upon the churches and their attitude toward it and toward one another are questions worthy of much consideration. On the eve of the war a Church Peace Conference met at Constance, Germany. A large delegation representing the Federal Council of the Churches of Christ in America and other bodies attended from the United States. About 150 representatives were expected from the churches in Great Britain, Germany and other European countries, the United States and Canada, and 85 of these reported at Constance. The sudden outbreak of war compelled the Conference to adjourn after a single day's session. An after-conference was held in London. Resolutions were adopted declaring that international conciliation is essentially a Christian task, to be undertaken in concert by the churches through national and international councils, and the World Alliance of the Churches for International Friendship was instituted in London to conduct the campaign. In response to the appeal of the Federal Council of the Churches of Christ in America, representing 30 denominations having 17,000,000 communicants, supported by the Union of Orthodox Hebrew Congregations, President Wilson appointed Sunday, Oct. 4, as a day of prayer and supplication for restoration of concord among the nations, and the day was widely observed not only in the United States but also in Japan. The churches have contributed largely to relief funds for the suffering in the war area (see XV, *Charity*).

German and British Church Circular Letters.—The leaders of the Evangelical Church in Germany, including pastors, professors and church dignitaries, and missions' directors issued a circular repudiating, in behalf of all Christians in Germany, "the responsibility for the terrible crime of this war and all its consequences in relation to the Kingdom of God," and asserting that Germany has been the subject of a conspiracy. To this statement English Churchmen, including archbishops and bishops of the Established Church and representatives of the Nonconformist bodies, made reply in courteous terms, disagreeing with their German brethren as to the causes of the war and other statements, particularly as to "unnameable horrors committed against Germans living peaceably abroad"; but agreeing in deploring the disastrous consequences of the war to all the belligerents.

Appeal of European Churches for Peace.—The Federal Council of the Churches of Christ in America received, at the end of November, an appeal from the Protestant churches of Scandinavia, Finland, Holland and Switzerland to keep the interests of peace constantly before the Church of Christ and to call upon God to destroy hate and enmity and bring about peace.

Effects of the War on Church Work.—As the war affects not only the embattled nations themselves, but indirectly all other nations, the churches and church enterprises outside of the war area are likewise affected by the sudden cessation of commercial intercourse, the suspension of international monetary exchange, the decline in industrial activity and the consequent loss of employment by masses of the population. A falling off in contributions for the support of the various denominational and benevolent causes was therefore to be expected. Foreign missions are perhaps most affected. Those carried on by German, French and British societies will languish inevitably, and churches outside the war zone must assist in the care of such missions for the time being. German missionaries in India find it very difficult to go on with their work, for as Germans they are under suspicion by the British government. American denominations having missions and churches in Germany, France and Russia report that there has been an almost complete cessation of work. Many of the pastors have gone into the war as soldiers and left their churches pastorless. Funds for the relief of such conditions have been raised in the United States and sent out. The work of the Salvation Army has practically been suspended in the war countries, most of its members being in the armies.

Increased Interest in the Churches.—The war, on the other hand, appears to have quickened the interest of people in the churches and in church worship. Reports from Germany speak of churches crowded with worshipers, among whom are those long indifferent and some who have hitherto been hostile. In France there is also a turning to the church, and fear of the "clerical peril" seems to have disappeared. A distinct revival of religious feeling has occurred. In Russia people flock to the churches in earnest devotion, and in Great Britain congregations are swelling.

JUDAISM

ABRAM S. ISAACS

Jewish Population of the United States.—The latest statistics as to the Jewish population of the United States, given in the *American Jewish Year-Book* for 1914-15, would indicate a much larger figure than previous estimates have reached, being computed at 2,933,374 on July 1, 1914. It is held that there are 1,300,000 native-born American Jews in the United States, who are being added to at the rate of 75,000 yearly, about three-quarters of this amount added by immigration. The net immigration for four years, 1911-14, makes a total of 396,640. The data are computed by Dr. Joseph Jacobs, of the bureau of statistics of the American Jewish Committee, and are on a broad basis, but the results must still be regarded as approximate. They are computed from immigration, from foreign stock, from mother tongues, and various other sources. Despite the natural congestion in the few larger cities, there has been a marked dispersion throughout the country in towns and villages, no less than 1,500 smaller communities being also centers of Jewish population.

Jews and the European War.—In the war of the European nations, the fate of the great majority of the Jews of the world is directly concerned. They do their share on the battlefield and all types and professions are represented, from Dr. Frank, the distinguished German Socialist who fell before Lunéville, to the chief rabbi of Lyons, France, who died on the field of battle. Although denied full equal rights in some of the nations, they have rallied with enthusiasm to the colors. It was stated early in September that the Czar was to grant religious liberty, but the report was not

confirmed by Imperial ukase. In Germany Jews are now freely admitted to the rank of officers, a new privilege. In France rabbis are among the enlisted men. In England representatives of the wealthier Jewish families are serving in the conflict with hundreds of their poorer brethren. As a result of the conflict, a large portion of Galicia, where Jewish poverty is most keen, has been desolated, while destitution in the Russian Pale has been intensified. In addition to generous aid to the Red Cross Fund, a million dollars was being raised late in the year for the direct relief of impoverished Jews in Europe and Palestine. From a study of the mobilization figures in the towns where Jewish population is known, it has been estimated that 600,000 Jews are enrolled in the various armies, Russia having 350,000, Austria 100,000, Germany 80,000, France and Belgium 4,000, and England 5,000.

Jewish Education in America.—Renewed efforts are being made in the United States to promote the religious education of the young, made imperative by the extensive immigration of recent years and the growing peril of our crowded cities, due to political as well as social evils. The Federal Bureau of Education has issued a bulletin by Dr. Friedlander, illustrating the educational work of the newly formed community of New York, which is doing much to improve existing methods and replace the old-time private Hebrew school or *Heder*, by more modern institutions and better-equipped teachers. Not only in New York, but in several other cities similar work is in progress. Model schools for elementary pupils and extension schools for older girls have been formed, text-books issued, lecture courses arranged. Ample financial aid has been secured for the present. In higher education there are two rabbinical colleges of the first rank (Cincinnati and New York); the Gratz training school for teachers in Philadelphia, and Dropsie College for Hebrew and Cognate Learning also in Philadelphia. More popular work is carried on by the Jewish Chautauqua, Young Men's Hebrew Association and Young Women's Hebrew Association educational classes, various sections of the Council of Jewish Women, and lodges of different fraternities. In addition, religious schools are conducted, chiefly on Sundays, by the congregations, and on week days for Hebrews by many more conservative synagogues. The Union of Congregations has now a well-organized Synagogue and School Extension Movement, which issues text-books and provides teachers' courses, etc. The Zionist organizations aim also at popular education, if in a less systematic way. The Menorah movement in a number of the colleges strives to popularize Jewish culture among the Jewish students by special lecture courses. A generous gift by Jacob H. Schiff has made possible two teachers' seminaries, one in New York and one in Cincinnati, to provide better equipped teachers for religious schools. The Jewish Publication Society, now in its twenty-sixth year, with its new translation of the Old Testament, its projected series of Jewish commentators and classics, and its new books issued annually, is a powerful aid to popular education. It has 12,000 members.

Religion in Public Schools.—Much dissatisfaction is felt at the action of school authorities in many states in sanctioning religious exercises in the public schools; and, while there is no present desire to establish Jewish parochial schools, for as a class the Jews of America are defenders and admirers of the public schools, more judgment must be exercised by the authorities or some action looking to separation will result, especially in districts where recent immigrants are in large numbers. Agitations occurred in Georgia, Ohio, Oregon, Maryland, New Jersey, Louisiana, Massachusetts, and elsewhere, due to attempts to enforce Bible reading and religious exercises on all pupils. Happily in most cases, the efforts to introduce religion into the public schools were defeated. At Utica, N. Y., in October, Jewish boys and girls refused to attend a public school where a religious picture was placed on the wall, and in Brooklyn Jewish children marched out of school when required to sing Christmas hymns. Closely connected with the agitation for religion in the schools, is the question of Sunday

laws, whose drastic provisions in some states are being repealed, as in Missouri, New Jersey and Colorado. The holding of public-school sessions on Saturdays was successfully opposed in Pueblo, Col., St. Louis and Denver. The Seventh Day Adventists coöperate with Jews in resisting such encroachments.

Jewish Progress in the United States.—Further efforts are being made to prevent managers of theaters and motion-picture houses from permitting performances of acts and exhibitions of films containing malicious and scurrilous caricature of Jews. The Chicago Board of Education has established at John Smith Public School courses in Hebrew and Jewish history. On June 19 Attorney-General Carmody of New York announced that he would appoint district attorneys in several counties of the state to prosecute summer resorts or hotels which advertise in violation of the civil rights law of 1913. On Feb. 10 was celebrated the completion of the translation of the Bible from the Masoretic text by a joint board of the Central Conference of American Rabbis and the Jewish Publication Society. Resolutions excluding from membership all Jews affiliated with Christian Science were adopted by D. G. Lodge, No. 4, I. O. B. B., at San Francisco, on Feb. 17. The Jewish Immigrants' Information Bureau, Galveston, was closed Oct. 1st, and that admirable movement to divert the stream of Jewish immigration to the far West has ended. The president of the Hungarian branch of the Jewish Colonization Association came to New York in June to complete arrangements for the colonization of 15,000 foreign Jews on farm lands in the Middle West. Effort is being made to increase the efficiency of the Young Men's Hebrew Association in various cities and new buildings are planned in some instances.

The principal Jewish institutions opened during the year include Temple Emanu-El, Birmingham, Ala.; Bnai Sholom Temple, Chicago; Sunday School building, Louisville, Ky.; Country Home, Hebrew Benevolent Society, Baltimore; school, Cambridge, Mass.; Home for Incurables, St. Louis; Community Building, Buffalo; Israel Orphan Asylum, Hebrew Infant Asylum annex, Henry Meinhard Memorial House, Harlem Kindergarten, New York; Jewish Maternity Hospital, Kenesseth Israel School House, Lebanon Hospital, Day Nursery Home, Philadelphia; B'nai B'rith Hall, Dallas, Tex.; B'nai B'rith Orphan Asylum, Erie, Pa. In addition the corner stone of the new Barnert Hospital, at Paterson, N. J., was laid, and synagogues were opened at Berkeley, Cal., Thomasville, Ga., Fort Wayne, Ind., Chelsea, Mass., Elizabeth, N. J., Jersey City, N. J., Oklahoma City, and several in New York.

Events Abroad.—In Russia there were continuous restrictions on the education of the Jews, with steady expulsions from within the Pale, a series of more or less serious exactions, but happily without a pogrom. The anti-Jewish boycott in Poland made further progress. Roumania still evaded her promises to make her Jewish soldiers full citizens. There was an active agitation against Jews in Roumania, and self-defense societies were organized by Jews. In the new Balkan states and in Turkey Jewish rights have been fairly safeguarded. In Palestine, owing to a dispute as to the language of instruction, the movement to promote technical training at the Haifa Technicum was checked, if not disrupted. In Germany and Switzerland university authorities restricted the number of Russian Jewish students. The oath "*more Judaico*" was abolished by the Croatian Diet. The Bulgarian Government made instruction in Hebrew and Judaism compulsory for all Jewish children attending state schools. Rabbis of France appointed a Sabbath committee for stricter Sabbath observance. The German Minister of War ordered that Jewish soldiers have every facility to observe their Sabbath. The Kaiser gave Ernest Sellin of Kiel 16,000 marks to proceed with his investigations at Shechem, Palestine. Berlin municipality received bequests of nearly 700,000 marks from wealthy Jews for public charities. Despite constant exactions and petty persecutions, Jewish educational funds increased in Russia and a Moscow publishing house was established to issue He-

brew text-books for the proposed Hebrew University in Jerusalem. Turkey abolished the law debarring foreign Jews from entering and remaining in Palestine. Three Jewish post-offices were opened in Jerusalem, with others to follow at Safed and Haifa. Many London synagogues permitted women to vote, and a Jewish Peace Society was organized in London.

RELIGIOUS BODIES IN THE UNITED STATES IN 1913

The aggregates of the accompanying table show a considerable advance in the year 1913 over the previous year (see *A. Y. B.*, 1912, p. 763). The largest increases in members for the year were Roman Catholic, 786,807, Baptist, 261,692, and Methodist, 219,974. The total net increase of communicants was, with some necessary corrections in the table for 1912, 1,434,966, of churches, 2,473 and of ministers, 2,298.

Denominations	Bodies	Ministers	Churches	Communicants
Adventists	6	1,179	2,547	98,822
Baptists	15	42,808	57,364	6,129,467
Brethren, Dunkards	4	3,446	1,291	119,460
Brethren, Plymouth	4	.....	403	10,566
Brethren, River	3	224	105	4,903
Buddhist	2	15	74	3,165
Catholic Apostolic	2	33	24	4,927
Catholics, Eastern Orthodox	7	291	331	438,500
Catholics, Western	2	18,600	14,681	13,673,787
Christadelphians	.....	.....	70	1,412
Christians	.....	1,129	1,182	102,902
Christian Catholic (Dowie)	.....	35	17	5,865
Christian Scientists	.....	2,694	1,347	85,096
Christian Union	.....	308	272	14,807
Churches of God (Winebrennerian)	.....	509	595	41,475
Churches of the Living God (Colored)	3	101	68	4,286
Churches of the New Jerusalem	2	137	157	9,601
Communistic Societies	2	.....	22	2,272
Congregationalists	.....	6,150	6,100	748,340
Disciples of Christ	2	7,692	11,725	1,519,369
Evangelical	2	1,539	2,600	187,045
Faith Associations	9	241	146	9,572
Free Christian Zion Church	.....	20	15	1,835
Friends	4	1,476	1,167	124,216
Friends of the Temple	.....	3	3	376
German Evangelical Protestant	.....	59	66	34,704
German Evangelical Synod	.....	1,051	1,345	261,488
Jewish Congregations	.....	1,084	1,769	143,000
Latter-Day Saints	2	3,560	1,520	356,000
Lutherans	21	9,194	16,010	2,388,722
Scandinavian Evangelical	3	629	857	72,900
Mennonites	12	1,413	736	57,337
Methodists	16	41,529	61,523	7,125,069
Moravian	2	146	143	20,463
Nonsectarian Bible Faith Churches	.....	50	204	6,396
Pentecostal	2	725	648	23,937
Presbyterians	12	13,740	16,646	2,027,598
Protestant Episcopal	2	5,527	7,899	997,407
Reformed	4	2,168	2,763	463,686
Reformed Catholic	.....	7	6	3,250
Salvationists	2	2,790	889	27,474
Schwenkfelders	.....	6	6	1,000
Social Brethren	.....	15	17	1,262
Society for Ethical Culture	.....	7	6	2,450
Spiritualists	.....	.....	2,000	200,000
Theosophical Society	.....	.....	145	4,189
Unitarians	.....	531	477	70,542
United Brethren	2	2,264	4,166	328,099
Universalists	.....	702	709	51,716
Independent Congregations	.....	267	879	48,673
Total	.....	176,094	223,735	38,059,428

XXX. ART, ARCHÆOLOGY, MUSIC, AND DRAMA

PAINTING, SCULPTURE, AND HANDICRAFTS

DAVID LLOYD

Societies.—The American Federation of Arts held its fifth annual convention in Chicago on May 21-23. Nineteen new chapters brought the constituent total to 200; 11 have been added since that time. The Federation has demonstrated strength and growth in uniting the force of scattered local organizations and looks forward to undertaking the upbuilding of the National Gallery of Art and the establishment of a ministry of fine arts. In educational service, besides its work in lectures and in extending the influence of its magazine, *Art and Progress*, and undertaking the publication of the *American Art Annual*, it had sent out in 12 months 23 traveling exhibitions shown at 114 places, some as far west as the Pacific, viewed by 300,000 persons and resulting in $4,900.83 in sales. In June a selection from the Carnegie exhibition was sent out.

Among new organizations the Guild of Boston Artists was formed in March with combined professional and lay membership. A new society of landscape painters followed in New York in April. The Omaha Society of Fine Arts collected more than half the amount needed for the purchase or erection of a home and gallery. The first exhibition of the Wisconsin Society of Painters and Sculptors was held in Milwaukee (March 19-April 16). The Society of Philadelphia Newspaper Artists was organized in March.

The valuable work of the School Art League was reviewed for the year by John W. Alexander, president, at the annual meeting in New York on Dec. 5. Miss Helen Greenleaf, docent, reported on work in the schools. Miss Florence N. Levy, secretary, arranged an important calendar of lectures.

The National Academy of Design in New York still continued to accept works without hanging them. The 40 trustees of the association of ten societies found no solution of the question of adequate gallery space. In March the president of the Academy revived in a newspaper interview the defeated project for building on the site of the arsenal in Central Park, then finally abandoned by the Park Department. Other plans, including the Grand Central terminal project, had been laid aside. In April the project for a combined Academy and Department of Fine Arts at Columbia University was dropped. And yet in 1914 the works accepted but not hung by the Academy were hung elsewhere and two societies seemed better to the artist public than one, a return to the situation of 1877-1906. Unlike the old Society of American Artists, the new arrival, the Allied Artists of America, did not in its inception spring from an antagonism between different ideals of painting; rather it set itself, after long waiting, to achieve the very task which has so far balked the Academy, "to provide an opportunity for exhibiting work by the ever-increasing number of artists, for whom the existing organizations are unable to make room." Not that it was immediately ready to provide room. Its first exhibition, held in the Municipal Gallery of the new Washington Irving High School (March 21-May 1), was for lack of space devoted to the work of members; 121 paintings were shown.

Many Academy men were found in the new society, including the president, John W. Alexander. The officers elected were Ernest Albert, president; Hobart Nicholls, vice-president; G. Glenn Newell, secretary; Frank Bicknell, treasurer. The prologue to this organization was the exhibition in January of the works accepted and not hung by the Academy. Sixty artists responded to the call of Ernest Albert and, after listening to sympathetic incitement from the Academy's president, organized for their temporary purpose. Whether or not, once the gallery problem is solved, the two societies maintain another 30-years' independence, the new body will surely serve meanwhile to underscore the need of hanging room.

The new society of 1913, the Association of American Painters and Sculptors, which did not, like the Allied Artists of America, disclaim rivalry with the Academy, accomplished little for its country, except, in its turn, to bear offspring. Its meeting on May 18 produced no programme. Maurice Prendergast was chosen president to succeed Arthur B. Davies. Walt Kuhn declined re-election as secretary and H. F. Taylor was substituted. The remaining officers are J. Mowbray-Clarke, vice-president, and Elmer MacRae, treasurer. Eight members resigned, leaving 16. The treasurer's statement that the receipts of the 1913 show amounted to $82,000, of which $70,000 was taken in at the Armory display in New York (*A. Y. B.*, 1913, p. 767), testified to the remarkable impression made by the society's first effort. Following his resignation, George Bellows, a member of the MacDowell Club's committee on art exhibitions, published a statement looking to a new organization. The MacDowell Club, concluding that it was giving too much emphasis to painting and planning to turn its attention to dramatic work, had voted to discontinue its novel series of group exhibitions at the end of another year. In the proposed organization the MacDowell Club idea would be expanded. A building would be obtained and seven or eight galleries opened, in which self-formed groups of eight to twelve painters might exhibit simultaneously. If this project comes to effect, the old Academy will be flanked by three new bodies, the Allied Artists of America, who will reject but not omit to hang the unrejected; the Association of American Painters and Sculptors, whose idea is to represent contemporary art, European as well as American; and the new body on the MacDowell plan, which will present no large salons and tolerate no jury.

The Jury Question.—The scope of jury action was ventilated in the cases of the Pennsylvania Academy, the Corcoran Gallery and the forthcoming exhibition at the Panama-Pacific Exposition by an agitation conducted for some five months in the columns of various newspapers and art journals, in particular the *American Art News*. The question raised was how far the practice of inviting works for exhibition preëmpted wall space which the jury might otherwise use for admitting works submitted in competition. The official statement of the Pennsylvania Academy showed that for the 1914 exhibition 173 works were substantially invited out of a total of 330 hung. Of the uninvited works in 1914, the Philadelphia, New York and Boston juries contributed 137 as follows: in Philadelphia out of 1,203 submitted, 100; in Boston out of 243 submitted, 23; in New York out of 596 submitted, 14. The authorities of the Corcoran Gallery avowed their practice of invitation but vouchsafed no figures. John E. D. Trask, director for the Panama-Pacific Exposition, expected to invite 400 to 500 contemporary works and to receive twice the number from the action of a system of interlocking juries. Complaint was also directed against the Carnegie Institute jury as lacking variety from year to year. In the eight years from 1907 the jury lists showed that of the 88 places (ten filled each year by ballot and one held by the Institute's director), 40 places had been occupied by six men. The Art Institute, Chicago, deliberated a proposal to allow the election of the jury by exhibiting oil painters. The Philadelphia prize, established for the Pennsylvania Academy by Edward Bok, is to be awarded by vote of visitors.

Exhibitions.—In New York the winter exhibition of the National Academy (closed Jan. 18) contained 351 paintings and sculptures, more than half by non-members; the spring exhibition, 396. Several important displays were made in the Municipal Gallery of the new Washington Irving High School. The Architectural League (Feb. 8-28) awarded its medal of honor to Barry Faulkner. Three of the Ten American Painters (March 21-April 4) were absent, Reid, Simmons and Dewing. John Singer Sargent was elected to the place of Robert McCameron, deceased, in the National Society of Portrait Painters, which closed its exhibition on Feb. 14. The Pastellists exhibited in the National Arts Club in February. The eighth annual exhibition under the auspices of the National Society of Craftsmen (Dec. 2-28) made an unusually extensive showing in ceramics. Samuel T. Shaw, founder of several annual prizes, showed 100 of his American paintings at the Salmagundi Club through the summer. Fashions were traced from 1776 to date at the Colony Club; and the Beaux Arts ball with Venetian pageant at the Hotel Astor deserves record. Remarkable loan collections of old masters were the groups of 19 early English portraits, 28 Gainsboroughs, 11 Turners, 19 Dutch masters and 34 Fragonards.

Outside New York the Society of Western Artists exhibited to Jan. 24 at the Art Institute, Chicago, followed there by the works of artists of Chicago and vicinity (Feb. 23-March 1) and the twenty-seventh annual exhibition of oils and sculptures (Nov. 3-Dec. 8). The Pennsylvania Academy (Feb. 8-March 29) awarded its gold medal of honor to Mary Cassatt, the first award since 1911, and in its group feature honored Jonas Lie. The Carnegie Institute (April 30-June 30) assembled 342 paintings, of which 184 were by Americans, and honored Paul Dougherty in a group display of 24. The attendance reached 49,750. The Corcoran exhibition opened Dec. 15. J. Alden Weir received first prize and gold medal. Hugo Reisinger selected and directed the display of 200 contemporary American canvases at the Anglo-American Exposition, Shepherd's Bush, London, during the summer. Cincinnati's museum had a replete programme of the various exhibitions on circuit. The Baltimore Charcoal Club (Feb. 9-March 8) drew 10,000 visitors. The Society of Washington Artists (April 9-28) displayed 135 exhibits. Ninety-one artists contributed to the annual show of the Society of Buffalo Artists in April. The Society of Arts and Crafts, Boston, devoted its spring exhibition to ecclesiastic art. The year's sales amounted to $72,000. The exhibition of the Minnesota State Art Society, instead of being sent on circuit through the state, was held concurrently with the state fair at St. Paul. The attendance reached 120,000. The Hartford Arts and Crafts Society exhibited paintings, porcelains and jewelry. There were 1,252 entries in the October handicraft display at the Art Institute, Chicago, which in December showed some of the paintings from the annual exhibitions of the Royal Canadian Academy (318) and the Montreal Art Association (431). Fifty-two Americans were represented at the new Paris Salon and 60 at the old; but only three at the international exhibition at Venice.

Sculptures.—During the year Lorado Taft completed several large figures for his "Fountain of Time." Frederick Macmonnies put in plaster two heroic figures for the entrance to the Public Library, New York. Commemorative statues included Daniel Chester French's portrait of R. W. Emerson at Concord, Mass.; William Ordway Partridge's Thomas Jefferson at Columbia University; R. Tait MacKenzie's Franklin as a youth at the University of Pennsylvania; Edward Berge's Colonel Armistead (1812) at Fort McHenry; John J. Boyle's Commodore John Barry at Washington; and Edmond T. Quinn's Edwin Booth for Gramercy Park, New York. For the Panama-Pacific Exposition important work was in hand by Robert Aitken, John Flanagan, Charles Grafly, Herman A. MacNeill, Albert Laessle, Charles Niehaus, C. C. Rumsey, James E. Fraser, Solon Borglum, Alexander Stirling Calder and others. In exhibitions the scholarly and vigorous work of Paul Manship has at-

tracted attention. The New York Numismatic Club started a project for improving the coinage, in particular the 50-, 25- and 10-cent silver coins, which under statute will be alterable in design in 1917.

Mural Decorations.—Kenyon Cox has shown studies for a mosaic dome in the Wisconsin state capitol. For the new court house at Des Moines Douglas Volk has recalled the fur-trading period. Among other decorations were those for the Educational Building at Albany by Will H. Low, and for Corpus Christi monastery at Hunt's Point, N. Y., by William Laurel Harris. Panels for the Panama-Pacific Exposition buildings have been painted in San Francisco by Robert Reid, Edward Simmons, Frank Vincent duMond, William Laitwich Dodge, Charles Halloway, Childe Hassam, Arthur Matthews and E. Milton Bancroft, and by Frank Bragwyn in London. A joint committee of Beaux-Arts architects and mural painters has been able to offer certain wall spaces in public buildings to competition.

Museums.—Grading has been begun for the new Municipal Gallery of Art in Philadelphia, though plans were halted by a decision declaring unconstitutional the loan bill under which the city was borrowing for the purpose. The Detroit Museum has acted favorably on a project to erect a new building. The Art Museum at Minneapolis is a beneficiary under the will of the late William A. Dunwoody, who died on Feb. 9. It receives $1,000,000 as a fund for the purchase of art works. A projected art museum for Baltimore was endorsed by the Charcoal Club, Peabody Institute, Citywide Congress, and among citizens by Mr. Walters. Work is progressing on the art museum at Chester, Pa., a memorial to Alfred Odenheimer Deshong. Part of the needed funds have been obtained for an art gallery at Lyme, Conn. The Montclair (N. J.) Museum opened on Jan. 15; William T. Evans has given it 54 oils from his collections, and the cost of the building was subscribed by Mrs. Henry Lang. Oberlin College is assured a new art building. William Sergeant Kendall, director of the Yale School of Fine Arts, in answering strictures on the care of the Jarves collection, expressed the expectation that a new building was to be erected for the University. Joseph Breck resigned as curator of decorative arts at the Metropolitan Museum to become director at Minneapolis. Jean Guiffrey, for three years director of the Museum of Fine Arts, Boston, returned to the staff of the Louvre. The Metropolitan Museum installed and exhibited the loaned collections of the late J. Pierpont Morgan. It received from Paris the William H. Riggs collection of arms and armor. By bequest of John L. Cadwalader, trustee for 13 years, the Museum's collection of English furniture was doubled in size and importance and its possessions in Chelsea porcelain were rendered second only to those of the British and South Kensington Museums. From Mrs. Charles Stewart Smith, Howard C. Smith and Charles Stewart Smith, Jr., the Museum received the collection of Chinese and Japanese paintings that belonged to the late Charles Stewart Smith, another trustee. The Benjamin Altman collection (*A. Y. B.*, 1913, p. 766) was first displayed on Nov. 17.

John G. Johnson of Philadelphia has published an admirable catalogue of his collection in three volumes, edited and prepared by Dr. Wilhelm R. Valentiner, of the Metropolitan Museum, and Bernhard Berenson.

Mayor Harrison of Chicago has officially proposed an annual appropriation by the council of $5,000 for municipal purchase of contemporary art works.

Deaths.—The death list for the year includes Augustus Koopman, painter, Feb. 2, at Etaples, France; Charles Volkmar, potter, Feb. 8, at Metuchen, N. J.; Wilton Lockwood, best known for his masterly rendering of peonies, March 2, at Brookline, Mass.; W. M. R. French, for 35 years director of the Art Institute, Chicago, June 3, in Chicago; Samuel Isham, painter and historian of American painting, June 12, at Easthampton, L. I.; F. K. M. Rehn, marine painter, July 6, at Magnolia, Mass.; Hugo Reisinger, collector and almost the nation's docent in contemporary German art, Sept. 28, at Langenschwalbach, Germany.

ARCHITECTURE

LLOYD WARREN

Notable Structures of the Year.—The year 1914 opened with ill augury for the architectural profession. The depressed condition of business throughout the country showed clearly that the erection of great buildings, which for the last decade have followed each other in quick succession, would somewhat relax during the next few years. Nevertheless, the year has seen the completion of some remarkable monuments.

Of all these, the Panama-Pacific Exposition buildings at San Francisco take a preëminent place. In its general design, it stands unique among exhibitions, and if we carefully read the following words by Thomas Hastings we can understand why:

> The most vital period in the artistic development of a great exposition is the beginning of the architects', sculptors' and painters' conference; and the spirit in which this first meeting is carried on, and the allotments made, is of the utmost importance to the artistic success of the whole work.
>
> The first meetings of the Board of Architects in San Francisco were, in every way, all that could be desired. The first day was devoted to a discussion of the general plan, the general disposition of the different sections of the exposition, determining the main axes, the relation of the different courts and buildings to each other, the main entrances, the avenue of approach, and minor circulations, the terrace, fountains, and other landscape features. These general features once determined upon as nearly as possible in preliminary discussion, it was agreed to meet the following day, when each of the seven architects constituting the Architectural Board was to make a drawing on a small scale, incorporating in his plan as nearly as possible the programme which had been agreed upon the day before. These plans were brought together and naturally strongly resembled each other, so that with further study they were developed into a harmonious ensemble, incorporating what was best in each one. This was the origin of the general architectural plan.

From these paragraphs we can see how thoroughly now the architects are able to gauge the sphere of their ability to work together. It has been, indeed, as Mr. Hastings further explains, the custom for the architects employed in laying out exposition buildings all to work together, and all of us remember the harmony of the Columbian Exposition at Chicago and the Pan-American Exposition at Buffalo. These were harmonies of color, of sky-line and of general proportions, but in the plan of the Panama-Pacific Exposition the harmony will be a much closer one. The whole plan, in fact, consists of a series of great courts permitting the work of only two or three designers to be in view at once. No publication has yet been issued giving an adequate representation of the treatment of these courts, but it is not difficult to imagine the charming variety of color and form which such a scheme will be sure to evolve.

In the Massachusetts Institute of Technology, of which W. W. Bosworth is the architect, we have an educational group whose well-studied utilitarianism is admirably enveloped in its academic architecture. Unlike most of our universities, it promises to be completed in the near future in all its unity of design, and, with its grounds sloping down to the River Charles, it will present a beauty of aspect such as few of our seats of learning possess.

Cram, Goodhue & Ferguson have completed during the year two of their most charming church groups in the Church of the Intercession in New York, from the designs of Mr. Goodhue, and the Fourth Presbyterian Church in Chicago, from the designs of Mr. Cram. Perhaps no architects in modern times have so admirably adapted the forms of Gothic art to ecclesiastical architecture.

The Biltmore Hotel in New York, Warren & Wetmore architects, opened its doors on the first of the year, and in its sumptuous interior the traveler finds as never before all those comforts and luxuries which seek to make the stranger forget that he is in a strange land.

Two gigantic clubs, the Yale Club in New York and the Manufacturers' Club in Philadelphia, are nearing completion. These buildings are no longer clubs in the old-fashioned sense of the word, but are buildings in which all the members seem united as in one family, having their private living apartments as well as their public meeting rooms under the same roof.

Of all the great department stores recently built, perhaps Lord & Taylor's in New York, the joint work of Starrett & Van Vleck and Hazzard, Erskine & Blagden, and Altman's with its recent addition, Trowbridge & Livingston architects, have carried further than ever before the sense that these vast stores are communities in themselves, made up of all the people they employ. In these buildings the employees have playgrounds on the roofs, clubrooms, restaurants and hospitals, so that from the moment they enter the building in the morning until the hour comes for them to leave, they have their allotted places of work and of recreation.

In the intensity of our American life, where man's pleasure is so often synonymous with his work, and therefore in our cities, where we seek to make our surroundings attractive by the sumptuous nature of our utilitarian structures, we give but little thought to constructions which are purely decorative. So year by year we can chronicle only a few designs which are erected solely for the sake of beauty. This year we can number two—the rearrangement of the Fifty-ninth Street Plaza in New York with the Pulitzer fountain designed by Thomas Hastings, and the Champlain Memorial Lighthouse which encases the old lighthouse of Revolutionary days and for which Rodin, the French sculptor, has molded a most interesting allegorical head of the French Republic to be set in its base.

To this list of structures of the first importance might be added, did space allow, a long category of notable public and utilitarian buildings which have been erected all over the country, but dominating even these in importance are a myriad of country houses designed in every part of the United States. American architects are perhaps best known in foreign countries for their skill in planning and their taste in the design of these habitations, varying from the modest bungalow of the California slopes and the eastern seashore to the palatial château. Without implied reflection on the many other competent architects in this field, we cannot refrain from mentioning in this connection the work of Charles A. Platt and Wilson Eyre.

Competitions.—The task of the greatest magnitude which has been set out for public competition has been that for the Houses of Parliament at Canberra, the new capital of Australia (*A. Y. B.*, 1912, p. 752). In America, the great George Washington Memorial Building for Washington, D. C., has been won in competition by Tracy & Swartwout. It will consist of a great assembly hall seating 8,000 persons, together with all the reception rooms and banquet halls necessary for such a concourse of people. The building of the Missouri State Capitol was also awarded to Tracy & Swartwout, and it will shortly be erected. The Pittsburgh City Hall was the subject of a most interesting competition, which was awarded to Edward B. Lee, in association with Palmer, Hornbostel & Jones. The one great decorative competition of the year has been that of the James Scott Fountain at Detroit, which was won by Cass Gilbert.

In our account of the buildings erected and competitions held in the year 1913, we tried to draw conclusions as to the tendencies in architectural plan and design which seemed to be prevalent at the time (*A. Y. B.*, 1913, p. 770). We thought that we saw a tendency for great concentration and unity of plan, yet we have to confess as we look on the work of 1914 that this characteristic was not followed out and seems to have been brought about perhaps by pure accident, perhaps by the necessity of the problems at hand.

City Plans.—In this era of centralized effort, it has been found necessary to surround great manufacturing plants with miniature cities inhabited by the employees; during 1914 one such city neared completion

and two others were in course of construction. On the Panama Canal, the town of Balboa, designed by Austin Lord, is now nearly completed. Two thousand miles north of it, on the borders of Canada, the town of Ojibway, near Detroit, is being constructed from the designs of Carrere & Hastings, for the plant of the United States Steel Corporation, which has employed the same architects to build the workingman's town of West Duluth, also. The plans of these two communities vary very largely on account of the conformation of their respective terrains, but each one is interesting from its study of the communications with the parent manufactory and the laying out of its administrative center, its recreation center and the residential quarters of the various classes of employees.

The Architectural Profession.—Of the various items which affect the profession of architecture, there are two which are especially interesting. In Chicago the height of buildings has been definitely limited to 200 ft. This, of course, will differentiate the design of the architecture and the aspect of the city of Chicago very distinctly from any other city which does not adopt the same ordinance.

Another item very different in its nature is the revision of architects' fees by the New York Chapter A. I. A. This revision affects the building of private houses more than anything else. It has been necessitated by the immense complexity of the private residence of to-day in comparison to what it was 20 years ago. We can all remember when few residences were anything more than four walls, a roof, a bathroom on each floor and a hot-air furnace. In these days, however, the fittings of a house are without number, house telephones, refrigerating apparatus, indirect-direct heating, vacuum-cleaning apparatus, electric lighting and electrical service of all kinds, elevators, bathrooms equal in number to bedrooms with every conceivable sanitary fixture. These requirements have made the design of private houses so complex a matter that an architect's fees calculated on the basis customary a few years ago would now show nothing but loss to the architect employed.

Architectural Education.—The great activities in the profession of architecture continue to stimulate the zeal of the teachers who must produce the professional men of the coming generation. Little by little, efforts are being made to promote a knowledge of art in relation to architecture in all our universities, and specialized schools continue to arise. Now that our schools of architecture proper have reached a point of great efficiency, attention has been seriously drawn to the training of painters and sculptors in their relation to the architect. In Chicago notably the attention of the art students has been directed in this line, and to give them practice in the actual execution of architectonic decoration, they have been allowed to execute decorations for many of the public schools in that city. In New York, the Society of Beaux-Arts Architects, whose energies in the lines of architectural education are well known, has been occupied for several years in devising a well-conceived scheme for the training of architectural sculptors and painters. During the year it has put this scheme into practice and the results obtained point to a successful issue to their efforts.

Bibliography.—The most characteristic work of the year has been John Galen Howard's poem *Brunelleschi*, which, besides its high literary merits, is a publication of rare beauty. Of especial interest to Americans are the two monographs devoted to the architectural work of McKim, Mead and White, and Charles A. Platt. Other interesting works are:

Bond, Francis.—*Introduction to English Church Architecture from the Eleventh to the Sixteenth Century.*

Bullock, Albert E.—*Grinling Gibbins and His Compeers.*

Jackson, Theodore Graham.—*Byzantine and Romanesque Architecture.*

Middleton, G. A. T.—*The Evolution of Architectural Ornament.*

Morgan, Morris Hecky.—*Vitruvius; His Ten Books of Architecture.*

Richardson, A. E.—*Monastic Classic Architecture in Great Britain and Ireland during the Eighteenth and Nineteenth Centuries.*

LANDSCAPE ARCHITECTURE

JOHN NOLEN

American Society of Landscape Architects.—The New York, Boston, and Minneapolis Societies of Landscape Architects are now chapters of the American Society of Landscape Architects, their admission having been approved.

Fellowship in Landscape Architecture.—A fund has been raised by the American Society of Landscape Architects to establish a fellowship in landscape architecture in the American Academy at Rome, the announcement having been made at the official opening of the Academy's new quarters on the Janiculum in Rome. This fellowship corresponds to those in operation in architecture, sculpture, and painting.

Landscape Architect for National Parks.—President Wilson has appointed Mark Daniels to the newly created office of landscape engineer and general superintendent of the national parks. Plans involving radical changes in the management of the national parks have already been announced. Mr. Daniels has said that "within two or three years the Department of the Interior hopes to popularize the parks for tourists, and keep in the United States at least $200,000,000 a year of the $560,000,000 that is annually expended abroad by Americans."

Public Work.—Among the more important public works of landscape architecture of the year are the following: the development of the Nathan P. Dodge Memorial Park, Council Bluffs, Ia.; the increase of construction work in parks to provide additional service, as illustrated by the construction of shelter houses, comfort stations, merry-go-rounds, golf grounds, and playground apparatus in Pittsburgh, at a cost of over $100,000; Columbus Park, Yonkers, N. Y., including a large pavilion; public park at Rye, N. Y.; the laying out of new parks for Houston, Tex.; new civic center at Winchester, Mass.; improvement of the state parks of Wisconsin; the linking of Lake of the Isles and Cedar Lake, completing the 40-mile boulevard system of Minneapolis; the improvement of Lyons Park, Mobile, Ala., combining recreation and park features; the construction of Green Lake Park and Parkway, Seattle, costing $500,000; improvement and additions to parks in Reading, Pa.; progress of Interstate Park on the Hudson River; the acquisition and construction under local assessment of Silver Lake Parkway, Los Angeles, Cal., 115 acres, costing $553,000; the outdoor "Zoo" in Griffith Park, Los Angeles, the beginning of a large project; the addition of zoölogical features in Franklin Park, Boston; the band stand at Lincoln Park, Chicago, with notable sculptures by Lorado Taft; the erection of the James Scott Memorial Fountain at the lower end of Belle Isle, Detroit, at a point which will be in full view of the cities of Detroit and Windsor, and of boats passing up and down the Detroit River; plans for 50 school grounds in Massachusetts, prepared by the Department of Landscape Gardening of the Massachusetts Agricultural College; also plans for small local parks and a successful exhibit of civic art by the same institution.

Competitions in Landscape Architecture.—During the year the following competitions have been conducted: Telawana Park, Borough of Queens, New York City; Burnham Park, Morristown, N. J.; Canal Subdivision Competition, Richmond, Cal.; a Scheme of Development for "Four Corners," Los Angeles, Cal.; a Neighborhood Center, under the auspices of the City Club, Chicago.

Land Subdivision.—A committee of the National Conference on City Planning has been appointed to investigate what are the best standard lot and block dimensions to adopt under various typical conditions commonly found in America. A committee of the National Real-Estate Exchanges is coöperating.

Bibliography.—The principal publications of the year are:

CORTISSOZ, Royal. — *Introduction and Monograph of the Work of Charles A. Platt.* (New York, Architectural Book Publishing Co.)

Harvard University, School of Land-

scape Architecture.—"Exceptional Opportunities for Field Study; Examples of Landscape Design in the Vicinity of Boston."

HUBBARD, H. V.—"The Size and Distribution of Playgrounds and Similar Recreation Facilities in American Cities." (*Landscape Architecture*, July, 1914.)

LAMBETH, W. A., and MANNING, W. H.—*Thomas Jefferson as an Architect and a Designer of Landscapes.* (Boston, Houghton, Mifflin & Co.)

NOLEN, John.—"Report on a Park System for Little Rock, Ark."

OLMSTED, F. L.—"Park Department Organization." (*Landscape Architecture*, July, 1914.)

ROBINSON, C. M.—"Report on a Park System for Council Bluffs, Ia."

SHURTLEFF, Flavel.—*Carrying Out the City Plan.* (New York, Survey Associates, Inc.)

WEAVER, Lawrence.—*Houses and Gardens by E. L. Lutyens.* (London, *Country Life.*)

ARCHÆOLOGY

CLASSICAL ARCHÆOLOGY

WILLIAM NICKERSON BATES.

Sardis.—The most important excavations carried on by Americans during the year have been those of Prof. Howard Crosby Butler at Sardis. South of the great temple of Artemis a Christian cemetery was explored and a long Lydian and several Greek inscriptions found built into graves. An early terrace wall of boulders was also discovered here. To the east the high bank of earth was carried back about 50 feet. North of the temple several Greek inscriptions came to light, including one which refers to the temple of Zeus, a building not yet found but probably to be sought to the northeast. At the extreme northern limit of the concession a long trench was dug which revealed well-defined strata of pottery, thus establishing a relative chronology for the vases. The early occupation of the site is proved by the finding of sherds of a plain gray or black ware and others with geometric designs three feet below the sub-Mycenæan level. In extending this trench to the south a long colonnade was partly uncovered and in it important fragments of sculpture were found, including a very fine horse's head. Work will be continued here in 1915. There was also discovered on a base cut into the west slope of the acropolis a monument of pyramidal shape of which seven steps still remain. Many tombs containing vases, bronze utensils, terra-cotta figurines, figured glass, and gold ornaments of great variety were opened by the excavators, and two tumuli across the Hermus were attacked, but without result. Within the cella of the great temple of Artemis were found remains of an earlier temple.

Corinth.—The American School of Classical Studies at Athens continued its excavations at Corinth for about two months. The most interesting single find was a very beautiful fourth century head from a relief.

Reports are now available for discoveries made in other parts of the Greek world too late to be included in the YEAR BOOK for 1913.

Corfu.—On the island of Corfu Professor Doerpfeld unearthed many architectural fragments which belonged to the archaic temple with the Gorgon pediment. These include parts of the terra-cotta gutter-ledge adorned with leaves and rosettes. At Cape Kephali prehistoric remains, including stone hand-mills, toothed flint blades, and hand-made pottery, were found.

Thasos.—On the island of Thasos the Gate of Silenus and the Gate of Caracalla have been completely cleared. Remains of a temple of the sixth century, B. C., and parts of a large hypostyle building with a crepidoma of five steps were uncovered. The latter was probably the meeting place of the assembly. Six Doric columns supported the entablature. Many inscriptions and other antiquities came to light in different parts of the site.

Tiryns.—At Tiryns German excavators have shown that the wall around the lowest fortress was built in late Mycenæan times, and that it was used as a refuge in time of war by the population of the lower city. It had practically no buildings. A bee-hive tomb, the first to be found at

Tiryns, was used throughout classical times.

Thessaly.—In Thessaly many discoveries of secondary importance were made. At Iolcus a domed tomb already known was cleared and objects of gold found. At Pagasæ more painted grave stelæ were discovered.

Cyrene.—The Italians have not yet begun systematic excavations at Cyrene, but men working on the fortifications discovered about twenty pieces of sculpture, including a very beautiful nude Aphrodite. It is life-size and has lost the head and arms, but is otherwise well preserved. It seems to be a Hellenistic work showing the best traditions of the fifth and fourth centuries.

Italy.—In Italy discoveries of considerable importance have been made. At Verona Prof. A. L. Frothingham has discovered the site of the Judicial Forum and part of the substructure of the Capitolium still *in situ*. In Rome portions of the palaces of Caligula and of Nero have been uncovered as well as traces of the imperial Nymphæum, also a domed structure which Professor Boni believes to have been the Mundus, and many houses, some dating from the time of the republic and others from the time of Domitian. At Ostia many shops and houses were excavated, some showing traces of three stories.

EPIGRAPHY

WALTER DENNISON

In the season of 1913 a short bilingual inscription in Lydian and Greek was found upon a statue base at Sardes, the first and only bilingual inscription of its kind thus far known (*Am. Jour. of Archæol.*, xvii, 474).

In the *Transactions of the American Philological Association* (xliv, 185-214) George Hempl identifies the language of two cuneiform tablets found at Tel-el-Amarna, on the eastern bank of the Nile, as old Doric and his study leads to a series of interesting historical and archæological observations.

In the *Publications of the Princeton University Archæological Expeditions to Syria* in 1904-1905 and 1909 (Part 3 of Section A, Division III, pp. 131-223), E. Littmann, D. Magie, Jr., and D. R. Stuart publish 291 Greek and Latin inscriptions.

Greek Inscriptions.—In the *American Journal of Archæology* (xvii, 506-519) A. C. Johnson describes a new inscription found on the Acropolis at Athens northwest of the Propylæa, dated in the archonship of Leostratus, 303-302 B. C. The inscription is of value in showing that in the Greek struggle for independence following the death of Alexander the Athenians contested the crossing of Alexander's veterans from Asia into Europe. The same writer publishes an Athenian treasure list (*ibid.*, xviii, 1-17). The stone was found on the Acropolis in a mediæval wall and records the treasures "of the goddess" at the close of the year, 372-371 B. C. Twenty-two lines are preserved. One of the most interesting items is an ἀκινάκης, popularly supposed to be the dagger of Mardonius. An inscription recording a decree in honor of Artemidorus, dating from the beginning of the third century B. C., has also appeared (*ibid.*, xviii, 165-184). In *Classical Philology* (ix, 225-234) K. K. Smith presents additional notes in the interpretation of two recently published fragments recording a decree of Chremonides passed in 266 B. C.

W. H. Buckler and D. M. Robinson continue their publication in the *American Journal of Archæology* (xviii, 35-74) of the Greek inscriptions that recent excavations on the site of Sardes have yielded. In every case the text is accompanied by an extended commentary. Twenty-one inscriptions, all of interest, are presented. One (No. 2) is a milestone which marked the seventh Roman mile on the road from Sardes to Pergamum. Six (Nos. 14-19) are tomb inscriptions, incised or written in ink on cinerary vases. Another (No. 20) is the oldest Greek inscription discovered at Sardes, dating from the middle of the fifth century, B. C. The same scholars edit (*ibid.*, 321-362) the text of a long document (also from Sardes) containing 139 lines, in a nearly perfect state of preservation. The document contains a series of public resolutions, dating from 5 to 1 B. C., conferring distinctions upon

Menogenes, son of Isodorus, the son of Menogenes, who was one of the ambassadors sent by the Sardians to congratulate Augustus on the coming of age of his son, Gaius, in January of 5 B. C. Under the title "Notes on Attic Inscriptions" in *Classical Philology* (ix, 417-441), A. C. Johnson contributes numerous data to the interpretation of Kirchner's new publication of the Attic decrees.

Roman Inscriptions.—In the *Transactions of the American Philological Association* (xliv, 151-161) D. N. Robinson presents a study of the social condition of the devotees of the oriental cults in the western world, the study being based wholly on inscriptional sources. He concludes that the devotees of the oriental cults were confined to no one class or position of society. At a meeting of the Archæological Institute of America held in Montreal (*Am. Jour. of Archæol.*, xviii, 80) G. J. Laing read a paper on the cults of the city of Rome as seen in the inscriptions; the purpose of the study was to determine to what extent the inscriptions give evidence of the survival of the cults of the *di indigetes* under the empire.

The Quinquennales, an Historical Study (Baltimore. The Johns Hopkins Press) is the title of a monograph by R. V. D. Magoffin, based upon inscriptional evidence. The *quinquennales* were municipal censors, who performed the same functions for many of the Roman colonies and municipalities as those exercised by the censors at Rome.

MUSIC

FREDERICK H. MARTENS

General Survey of the Year.—A retrospect of the year 1914 in music justifies the belief that it represents a period of real cultural significance and progress, one less adversely affected by the European conflict than might at first have been expected. If creative activity among American composers in the operatic field has not been marked, valuable additions have been made to the literature of symphonic music, and to that of the voice and solo instruments. The propaganda for American music and musicians (inaugurated by John C. Freund, editor of *Musical America*) has been fruitful of good results, and there has been a general and widespread growth in musical interest and appreciation.

Propaganda for American Music.—The growth of the movement in favor of encouraging and furthering the cause of American composition has resulted during the year in the formation of various societies whose specific aims all tend toward the same general end. Among them are: the Music League of America, organized for the purpose of finding "a practical solution of the problem of securing engagements for worthy young musicians"; the Stillman-Kelly Society, founded to further "the engraving and publishing of the larger orchestral scores of American composers"; and the American Society of Composers, Authors and Publishers, planned along the lines of the French *Société des Auteurs, Compositeurs et Editeurs*, to protect the American creative artist and collect fees for the performance of copyright works. Finally, the formation of a National Association of Sheet Music Dealers was an important step toward the improvement of adverse conditions in the music trade.

The cornerstone of the Theodore Presser Home for Retired Music Teachers, the first institution of its kind in this country, was laid in Germantown, Philadelphia, on Sept. 25, and represents the most important event in musical philanthropy to occur during the year. The interest in the pageant idea and in pageant music has found expression in artistic pageant performances in New York, St. Louis, Portland, Me., Nashville, Tenn., Peterboro, Vt., Cape Cod, Mass., and a number of other cities and towns (see also XV, *Recreation*); and the year has witnessed an increase in the number of works by American composers listed on symphonic and recital programmes. Will C. MacFarlane's recital work as municipal organist of Portland, Me., has set a splendid standard for coöperative achievement in music and civics.

Grand Opera.—Victor Herbert's musically attractive one-act opera, *Madeleine*, which was given its *première* at the Metropolitan Opera House on Jan. 26, though it had grace and charm to recommend it, was, as a prominent critic remarked, rather "lyric drama in English, with music," than grand opera in a strict sense of the word. Mr. Herbert's work represents the nearest approach to an "American grand opera," fast becoming a Metropolitan institution, performed during the past year. That the last twelve months, however, have not gone by without the composition, by an American composer of distinction, of an operatic score scheduled for public performance, is proved by the award of a ten thousand dollar prize to Dr. Horatio Parker, the composer of *Mona*, for his opera *Fairyland*, to be given in Los Angeles in 1915.

Among European operatic novelties performed in this country, the most important in point of interest were: *L'Amore dei tre re* (New York, Jan. 3), by the Italian composer Montemezzi, who has been called "the artistic grandson of Verdi,"—the Verdi of *Otello* and *Falstaff;* and Charpentier's *Julien* (New York, Feb. 26), an operatic sequel to the same composer's *Louise*. Montemezzi's score, set, like Parker's *Mona*, to a dramatic poem instead of the customary "libretto," was undeniably successful because of its originality, musical eloquence and rich orchestral color. The general incoherence and dramatic weakness of Charpentier's *Julien*, in spite of much episodic beauty, explain the fact that it scored no more than a *succès d'estime*. *L'Amore medico*, by Wolf-Ferrari, given its first American hearing at the Metropolitan Opera House on March 25, revealed itself as an *opera buffa* of modern harmonic texture, with all the musical grace and humor which the Molière comedy, of which Golosciani's libretto is an adaptation, seemed to demand.

Of lesser musical importance were the New York *première* of *Monna Vanna* (Feb. 16) by Février, a work already heard in Boston, Chicago and Philadelphia, and which was well received, despite lack of originality and emotional power; and the first American presentation of Gnecchi's *Cassandra* in Philadelphia (Feb. 26). In this score the composer's music, in spite of an element of melodramatic appeal, lacked real vitality, and is unlikely to secure a permanent place in the operatic repertory.

In general, the balance has been well maintained, both at the Metropolitan Opera House, the Century Opera House and in Chicago, Boston and Philadelphia, between standard repertory works, comparatively recent works, which have secured a place in the popular affection, such as *Boris* and the *Rosenkavalier*, revivals of older scores, such as Weber's *Euryanthe* (Dec. 19), which was a great artistic success, and novelties. Perhaps the most striking feature about opera in America during the fall and winter of 1914 is the fact that, owing to the European conflict, New York was practically the only city in the world able to present grand opera on an imposing scale. As, owing to the war, in Chicago, Boston and Philadelphia opera would otherwise have been at a standstill, the Century Company planned a short season in each of the cities in question. Its experience in Chicago was not successful financially and in December the company was forced to disband, a most unfortunate blow to the cause of popular opera.

Symphonic Music.—American composers have been well represented on the orchestral programmes of the year 1914. Among important new works heard have been: Henry F. Gilbert's symphonic prologue "Riders of the Sea"; Henry Hadley's symphonic poem "Lucifer"; the Oriental suite "Lalla Rookh" by E. R. Kroeger; Rubin Goldmark's tone poem "Samson"; and Homer Bartlett's programmatic symphonic poem "Apollo." Among the shorter orchestral works, Gena Branscombe's "Festival March" and E. Ballentine's prelude to "The Delectable Forest" might be instanced. Names notable in American music have been associated with the tonal portion of various pageants, among them Frederick S. Converse, with that of the "Pageant and Masque of St. Louis"; and Daniel Gregory Mason with that of the Cape Cod Pageant.

A number of European orchestral novelties have been presented in this

country during the year, notably: Florent Schmitt's orchestral suite *"La Tragédie de Salomé,"* which has been called "one of the most significant instrumental compositions since Debussy's *"L'Après-midi d'un Faune";* the "Festival Prelude" by Richard Strauss; Sir Edward Elgar's "Falstaff"; Debussy's second nocturne for orchestra; Hinton's "Endymion" suite; Erich Korngold's *"Sinfonietta";* Guy Ropartz' cyclic symphony in C major (No. 4); Ravel's *"Daphnis et Chloe,"* a "symphonic ballet in three tableaux," and Reznicek's Straussian symphonic biography, *"Schlemihl."*

In the chamber-music field the most important events have been the presentation of a string quartet, Op. 7, in D minor, by the Viennese musical revolutionary, Arnold Schönberg, and of movements from a quartet by Darius Milhaud, a young French impressionist, both played by the Flonzaleys; the introduction of a strongly racial Magyar quartet by the Hungarian composer, Zoltan Kodály, to American audiences by the Kneisels; the performance of a new string quartet, C major, Op. 25 of Edgar Stillman Kelly's in Berlin; and the publication of a new trio for violin, violoncello and piano by Charles Wakefield Cadman.

Choral Music, Instrumental Music and Songs.—Though the American composer has been largely represented by shorter compositions in the choral field during the year, the larger works performed have been mainly of European origin. Among them were: the Bach B minor mass (Bethlehem Bach Festival), Beethoven's *Missa Solemnis,* Handel's Masque "Acis and Galatea," Sir Edward Elgar's "Dream of Gerontius," and the British composer Hamilton Harty's setting of Walt Whitman's "Mystic Trumpeter." A number of valuable new songs, as well as compositions for piano and the individual string instruments, by American composers have appeared during the year.

Music in Europe.—Musical creative energy in particular, and musical progress generally, in Europe suffered a severe setback with the outbreak of the European War in August. Though musical activity was not at a standstill in the countries involved, it became a very secondary consideration, and musical interests are bound to suffer in proportion as the war continues. Operas of note have been few and far between. Among the more prominent composers Richard Strauss contributed a "symbolic ballet," *"La Légende de Joseph"* (Paris); Engelbert Humperdinck an opera, *Die Marketenderin* (Cologne); Christian Sinding "The Holy Mount" (Dessau); Riccardo Zandonai a dramatic *Francesca da Rimini* (London). A *Cléopâtre* (posthumous) by Massenet and a *Sœur Beatrice* by André Messager were given at Monte Carlo; Joseph Holbrooke offered his *Dylan,* the second score of a trilogy, in London; and Mascagni a *Parisina,* libretto by D'Annunzio, which was a flat failure in Rome and Milan.

Noticeable were the great number of *Parsifal* performances throughout Europe, a consequence of the expiration of the copyright on that opera. Many concerts and musical commemorations of the Gluck bicentenary, especially in Germany; a great musical and patriotic Norse festival held at Christiania (June), when compositions by the leading Norse composers were performed; extensive Bach festivals in Salzburg and Moscow; attempts on the part of musical "futurists" (especially in Paris) to develop a fourth dimension in music; and a successful continuation on the part of Russian and French composers to develop the homogeneity of music and dancing in ballet composition were features of European musical activity during the year.

Literature.—The publication of a number of valuable original works and translations reflects the steady growth of interest in music during 1914, but lack of space prevents consideration of more than a few notable works. Important general works are: the eighth edition of Hugo Riemann's *Musik-Lexicon,* issued in parts, of which the last to appear is part 5-6; *Music, its Laws and Evolution,* by J. Combarieu, the celebrated French musicologist, a translation of his *Histoire de la Musique;* and *The Art of Music,* comprising "a complete account of the evolution, development and present state of the art, critical and technical treatises covering every

department, a biographical and encyclopedic dictionary and musical supplement, in fourteen volumes, the editors and contributors being musicians and critics of international repute." In this connection the two volumes of the *Encyclopédie de la Musique et dictionnaire du Conservatoire*, edited by Albert Lavignac, also call for mention. Among studies in special fields are Oscar Bie's splendid volume *Die Oper* and, more specific, Mrs. Rosa Newmarch's *The Russian Opera*, which may be called the best book the subject has as yet called forth. Two important new works on instrumentation are Cecil Forsyth's *Orchestration* and Dr. Curt Sachs' *Real-Lexicon der Musikinstrumente*, a polyglossary of the entire instrumental field. Edward J. Dent's critical study of *Mozart's Operas*, the third volume of Philip H. Goepp's *Symphonies and their Meaning*, Dr. Chas. W. Pearce's new *Modern Academic Counterpoint*, H. E. Krehbiel's *Afro-American Folk-Songs*, Claude Aveling's admirable English version of Pierre Aubry's *Trouvères and Troubadours, a Popular Treatise*, Edgar Istel's *Das Libretto*, and Lawrence Gilmann's *Nature in Music and Other Studies in the Tone Poetry of To-day*, call for notice. In addition might be mentioned a delightful English translation by Hilaire Belloc of J. Bédier's *Tristan et Iseult* which is, perhaps, of greater literary than musical interest.

Notable among biographies are: *Beethoven's Persönlichkeit*, the personality of the master as reflected by contemporary opinion, by Albert Leitzmann; Max Steinitzer's biography of *Richard Strauss;* Ernest Newmann's *Wagner as Man and Artist; Claude Debussy et son œuvre*, by Daniel Chennevière; *Maurice Ravel et son œuvre*, by Roland Manuel, and an English version (with an additional chapter on "The Musical Movement in Paris") of Romain Rolland's *Musicians of To-day*.

The musical novel of the year, "though long ranked as a classic of musical fiction in Germany," is undoubtedly Ernst von Wolzogen's *Florian Mayr*, Englished by Edward Breck and C. W. Genung, an intimate and forceful study of the Lisztian community at Weimar.

Necrology.—Some well-known names are listed on the mortuary record of the year 1914. Among Americans, the celebrated *prima donna*, Lillian Nordica (Lillian Norton), an artist of the first rank and unequaled in Wagnerian rôles, died in Batavia, Java, May 10, as a result of an illness contracted in consequence of exposure and shipwreck. Putnam Griswold, the operatic basso, a member of the Metropolitan Opera Company since 1911, also eminent as an interpreter of Wagner rôles, died in New York on Feb. 26. And in Berlin, Frank King Clark, one of the best known and most successful of American vocal teachers living abroad, passed away on Oct. 4. Emil Liebling, well known as a teacher (piano), as a composer, virtuoso and *littérateur*, died at his home in Chicago on Jan. 21. William Dressler, an American musician of the old school, once prominent as a solo pianist and accompanist to Ole Bull, also as an organist and musical editor, died in New York on July 2; and the veteran New England organist and composer, Samuel Brenton Whitney, of Boston, passed away at Woodstock, Vt., on Aug. 3.

The year has also witnessed the demise of a number of men eminent in the European world of music. Tito Mattei, the Italian pianist, conductor and composer, best known as a songwriter, died in London on March 30. Stephan Raoul Pugno, the French concert pianist and composer, celebrated as an interpreter of the classics, died Jan. 3, in Moscow. Lodewyk van Gheluve, dean of Belgian composers, his cantatas the best known of his works, passed away on July 20 in Ghent. Paolo Giorza, an Italian composer, a friend of Gounod and Verdi, whose ballet music enjoyed much popularity in its day, died in Seattle, May 4, at the age of 82. J. Cuthbert Hadden, the English organist and author, died in Edinburgh May 28; and on the eighth of the same month, in Florence, Vincenzo Lombardi, vocal teacher and conductor, among whose pupils were Calvé, Caruso and Riccardo Martin. On Aug. 11, Emil Fisher, the famous German operatic bass, notable as an interpreter of the rôle of *Hans Sachs* in *Die Meistersinger*,

died in Hamburg, and his death was followed the succeeding day, in Paris, by that of Pol Henri Plançon, the French operatic basso, who first sang in this country at the Metropolitan Opera House in 1893-4. Finally, the tragic decease of R. Hope-Jones, the noted organ-builder and inventor, who died by his own hand in Rochester, N. Y., Sept. 14, and the demise of Giovanni Sgambati, the celebrated Italian composer and teacher, in Rome, Dec. 21, at the age of 71, call for mention.

THE DRAMA

MONTROSE J. MOSES

The Theatrical World.—The great European War has so completely put a stop to dramatic effort abroad that, at the close of the year, New York stands as the largest dramatic center of the world. At one period the London theatres discontinued their nightly performances; while Paris found her players, as well as her opera singers, impressed into service. Berlin, under the Kaiser's orders, is keeping up a semblance of art and music activity. But all told, art subsides before the frightful onrush of arms. The tying up of the cotton market did much to bring disaster to the southern theatrical circuit, while everywhere on the road, traveling companies have felt the tight grip of retrenchment. One failure, attributed to the ill-success of Sheldon's "The Garden of Paradise," was that of the Liebler Company, but coming at a time less depressed in financial circles, the embarrassment might have been stemmed. This assignment removes from the field a noteworthy theatrical corporation. Another failure was that of Harrison Grey Fiske, whose name is a big one in the dramatic history of the past two decades in the American theatre. The cause for business embarrassment was laid at the doors of the moving pictures.

American actors have contributed largely to benefits for the war sufferers. The Stage Society, for the benefit of the Committee of Mercy, organized an exhibition which was called "The Art of the Theatre"; there were shown original designs for the stage by Parrish, Leon Bakst, Joseph Urban, Livingston Platt and Sam Hume. There were displayed likewise 30 stage models, and a demonstration was given of the newer type of German stage, including the concrete sky dome and the new method of diffused stage lighting. This exhibition, with specific examples of the "new movement," emphasized some of the best designs of the impressionistic school, the influence of which is already apparent in many American productions. A notable book of the year, Moderwell's *The Theatre of To-day* (Lane), very excellently describes the latest forces in stage management. The year has witnessed the reëstablishment of the Dunlap Society, devoted to the preservation and publication of theatrical records and old plays, and under the direct initiative of Prof. Brander Matthews, the Dramatic Museum of Columbia University is issuing a number of documents dealing with the theory and practice of the art of the theatre. The Drama League Series of Plays continues to increase in number and in value, while under the editorial guidance of Edwin Björkman, the "Modern Drama Series" is attaining distinction.

New York has seen the establishment of a unique playhouse in the Punch and Judy Theatre, another little home for the drama, and there has just been launched the Bandbox, a corporation under patronage, and directly under the guidance of Douglas J. Wood. Winthrop Ames's Little Theatre continues its policy unchanged, and during the year the management announced Miss Alice Brown the winner of the $10,000 contest with her play, "Children of Earth"; it will be produced early in 1915. The Toy Theatre of Boston is putting the finishing touches on a new playhouse, while at Northampton, Mass., the theatre under the directorship of Bertram Harrison has risen to municipal importance, the city guaranteeing to sustain whatever loss there may be at the close of the season. In Pittsburgh a Department of Drama has become a part of the Carnegie Institute of Technology and has increased to encour-

aging proportions. The Drama League of America held its fourth annual convention in Philadelphia in April, and the report illustrates the wide reach of that organization. The president for the present term is Prof. Richard Burton of the University of Minnesota.

Revivals.—The season has not been particularly strong in the character of its revivals. Margaret Anglin brought her very commendable productions of Shakespeare, with their novelty of scene, and met with disastrous financial rewards. The triumph of this engagement, however, came with the revival of Oscar Wilde's "Lady Windermere's Fan," which had a deserved run, and partly compensated for the almost studied disregard of the Shakespearean efforts. This performance, with Miss Anglin as *Mrs. Erlynne* and Margery Maude as a rather pale *Lady Windermere*, contained a freshness which was largely due to the personal spirit of the acting. The revival of Sardou's "A Scrap of Paper" was the occasion for John Drew and Ethel Barrymore to appear together; had it not been for the zest with which the former interpreted his rôle of *Prosper Couramont*, the latter would scarcely have been bearable as *Suzanne*. This attempted "star" performance was not a brilliant success. Nor did Charles Frohman find encouragement when, in the fall of the year, after much heralding, he brought to his Empire Theatre an "all-star" revival of "Diplomacy," which was written up-to-date with automobiles instead of the family coach. William Gillette was *Sherlock Holmes* rather than *Henry Beauclerc*, Marie Doro was an inarticulate doll rather than a warm and simple *Dora*, while Blanche Bates, even though she did not touch the Sardou conception of the *Comtessa Zicka*, at least gave subtlety to the part.

William Faversham appeared in an adequate revival of "Othello," in which R. D. MacLean as the *Moor* quite overshadowed him as *Iago*. Cecilia Loftus as *Desdemona* was entirely off the key, giving a mixture of *Mélisande* and *Ophelia* to a rôle which is far from either. Pedro de Cordoba, as *Cassio*, was distinctive and clear cut, while Constance Collier, at times ranting, was an adequate *Emilia*.

Phyllis Neilson-Terry, daughter of Fred Terry and niece of Ellen Terry, brought a company to America with "Twelfth Night." Of her *Viola* we can say little except that it had certain girlish charm but lacked deep poetry. Her reading, especially of the set speeches, was worthy, and there was a boyish quality to her poses which helped to make vivid her pictures.

Picturesque Drama.—There have been a number of plays largely dependent for their appeal on the picturesqueness of the scene, and on the fantastic quality of the plot. Percy Mackaye's "A Thousand Years Ago," now available in book form as part of the Drama League Series of Plays, met with considerable success. Into a Persian tale, with a similar theme used in an Italian comedy entitled "Turandotte," Mr. Mackaye introduced elements of his own, based on his knowledge of Italian drama. The scenes were full of artistic blend of color, reminiscent of Reinhardt, and the text, even though in the reading it is not as literary as we might expect of Mr. Mackaye, is vigorous and actable.

"Maria Rosa," by Angel Guimera, was a Catalan play which found its way into the stage history of Spain through José Echegaray, and which was adapted into English by Wallace Gillpatrick and Guido Marburg. In the title rôle, Dorothy Donnelly assumed a picturesque part, while Lou-Tellegen, known to the French stage as the support of Sarah Bernhardt, was the jealous lover. There was some of the Carmen color in this piece, an altogether interesting provincial spirit lending zest to a rather clumsily told plot. "Omar, the Tent Maker," with Guy Bates Post in the title rôle, was a Persian play by Richard Walton Tully, based on the life, time, and *Rubaiyat* of the poet. The stage sets were effective, and the play had many commendable points, giving, in the midst of lines that suffered by comparison, the Fitzgerald quatrains.

Austin Strong's play of the Boxer rising in China, "The Dragon's Claw," with little novelty and none too gorgeous surroundings, exhibited little

reason for being, and in consequence had but short life. The story was the usual one of the misunderstood husband, and the overrated other man, with the final awakening of the woman to her folly in the midst of siege and danger. There was no large human appeal to the story, while the acting of Gladys Hanson and Charles Waldron was lacking in distinction, due largely to the mediocre play itself.

David Belasco achieved a success in his tasteful production of "The Phantom Rival," adapted by Leo Ditrichstein from a play by Ferenc Molnar. It was the best of those dream plays which have marked the final half of the year's offerings, dealing fantastically with the case of a woman who arouses the jealousy of her husband with a buried love which she nurtures, treasures, and holds above the actual romance of her present. In a dream she sees the lover who left her years before with every avowal that he would win heaven and earth for her, in all the heroic positions he has claimed he would attain. The husband, realizing how foolish her romance really is, allows her to meet her former flame. She finds her ideal a failure, and so the "phantom rival" vanishes in thin air. While Mr. Ditrichstein, as ever, gave that thoughtful characterization in the different scenes which often recalls the technic of the late Richard Mansfield, the triumph of the performance was the exquisite comedy of Laura Hope Crews as the wife. In the whole stage directing, Mr. Belasco has never shown more discrimination.

The London success, "Mr. Wu," another Anglo-Chinese play, was the vehicle for Walker Whiteside, an earnest actor whose excellent work could not save the piece, nor turn the public in favor of a tragic ending. George V. Hobart's "Experience," with music and song, was another modern morality play, of which Walter Brown's "Everywoman" stands as a typical example. There are ten episodes to this pilgrim's progress, in which William Elliott, returning to the stage after his success as manager, was *Youth*.

Among the dramatizations of the year, the one from which most was to be expected was Louis N. Parker's version of "David Copperfield," which he renamed "The Highway of Life." Though audiences saw the tangible forms of David, Betsy Trotwood, Agnes, Steerforth, Traddles, Mr. Micawber, and the host of fiction friends in which the book abounds, and though Mr. Parker tried as well as he could to keep the Dickens language, the play had a disastrous run. Lennox Pawle was the *Micawber*, and his wife, Dorothy Parker, was *Little Em'ly*.

A picturesque contribution to the fall openings was Edward Knoblauch's "My Lady's Dress," in which were unfolded the countless tragedies woven into the material, the trimming, and the making of a dress which my lady is to wear. She, of course, dreams the seven episodes, each one of which is a little tragedy with its individual atmosphere. In all of these playlets, Leon Quartermaine and Mary Boland assumed the chief rôles; the latter let slip many opportunities, both picturesque and emotional. The fault with the piece was that the thread which bound the seven episodes together was so thin as to be devoid of sustained interest and sympathy.

Edward Sheldon's "The Garden of Paradise," a play in nine scenes based on Andersen's "The Little Mermaid," was so devoid of imagination and of high poetry and was so choked with detail instead of the simple human quality of the tale, that it starved for want of appreciation.

Serious Drama.—The only play to come in conflict with the police was the dramatization of Reginald Wright Kauffman's "The House of Bondage," but though detectives were sent to report the dialogue, there was no widespread public interest in its career. Margaret Turnbull's "The Deadlock," written with serious intention to make interesting the love struggles of a frocked priest and an opera singer, was loosely knit and failed of appeal in the human problem confronting hero and heroine. Edith Wynne Matthison had the leading rôle.

Somber and tense in its severe criticism of life, J. O. Francis's drama of Welsh life, "Change" (which has since been published), had a disastrous career in America, the actors being almost stranded on their tour. The play itself, a poignant treatment of the younger-generation question, with the desertion of children from an unre-

lenting father, and with a timely mixture of insurgency and syndicalism, is an excellent example of good literature, and was deserving of support.

"The Land of Promise" took Somerset Maugham out of his usual light and cynical atmosphere, and brought his heroine from Tunbridge Wells to Manitoba, where the primitive struggles of a man and woman were entertainingly worked out. In order to escape the drudgery of farm life, the heroine willingly gives herself to a man she does not love. In the end, his brute nature, as well as the uncouthness of his house, is changed, and there is a happy ending. The chief rôles were adequately sustained by Billie Burke and Shelley Hull.

Monckton Hoffe's "Panthea" introduced to the stage the sinuous figure of Mme. Olga Petrova; her part was somewhat of a vampire rôle, in which a disagreeable old reprobate and an impressionable musician are led through vicissitudes, and the woman is dragged through such emotion as was common in the Sardou days. Petrova has considerable personality which she occasionally allowed to creep through her artificiality.

"The Elder Son," an English adaptation by Frederick Fenn, was brought over from London with an English company, headed by Norman Trevor; it contained much good material, but curiously degenerated into farce which spoiled the force of its problem: that in a family, where both husband and wife are twice married and have children each by their former alliances, there must necessarily be conflict and friction, where the personality of the strongest, in this case the eldest son, asserts itself.

George M. Cohan did some excellent work in the dramatization of "The Miracle Man," based on Frank L. Packard's book of the same name. Its main motive centered in the story of how faith and goodness conquer fraud and deceit, the faith being that of an old man famed for his healing powers, and the fraud found in a gang of thieves determined to exploit the miracle man for their own enrichment.

William Faversham began his fall season with Francis de Greisset's "The Hawk," in which, as his leading lady, Mlle. Gabrielle Dorziat was introduced to American audiences. The man and wife are professional gamblers who are caught just at the moment when the wife is being led astray by her lover. The husband falls into poverty, and when he is called back in order to facilitate arrangements for a divorce in accordance with French law, the wife suddenly realizes that her place is with him; together they will go to America and begin anew. In the big moments of the play Mr. Faversham displayed excellent force and distinctive technique, while in Mlle. Dorziat there were many pleasing emotional qualities, thoroughly reminiscent of the school of which Mme. Simone is a member.

Charles Klein returned to America in the fall with a new play which was an old one rewritten and called "The Money Makers." His theme was that it is possible for a millionaire, whose goods are ill gotten, to make restitution at the eleventh hour. The millionaire succeeds against odds, thanks to his wife, who, when the trouble began to brew, was on the eve of succumbing to the pleadings of a former lover. The play failed very largely because of the false economic preachment which came from the mouth of the repentant millionaire, depicted by Emmet Corrigan. Alexandra Carlisle was the wife.

Very different from his former plays, "Cousin Kate" and "The Mollusc," was Hubert Henry Davies's "Outcast," in which Elsie Ferguson played the not very attractive rôle of a street walker, accidentally thrown into the life of a man who has met disappointment in love. Under these circumstances, the usual thing happens, and when the man throws the girl over there is the terrible awakening of the woman. Yet the tragic conclusion is saved in a most perfunctory manner. The girl in the end is content to go anywhere with this man, but she will not marry him inasmuch as marriage is only for good women.

The collaborators, Harvey O'Higgins and Harriet Ford, authors of "The Dummy" and of "The Argyle Case," went to Utah for the theme of their latest play, "Polygamy," and they presented a graphic picture of the

wiles and subtle influences of Mormonism. The story tells of an ill-fated pair whose love is rudely awakened by the demands of celestial marriage, against which they rebel. In consequence they are brought before the synod of the church, and put to a test as to their loyalty. There are too many wives to make the play carry any sweetness, and the problem is too aloof from American conditions to be of deep interest. In the cast were Chrystal Herne, Mary Shaw, and William B. Mack.

Among the late productions of the year, Henry Arthur Jones' excellent study of "The Lie," in which one sister destroys the immediate happiness of another, with Margaret Illington in the leading rôle, was notable in construction and consistent in characterization. Edward Sheldon was successful in his efforts to bring his version of Sudermann's "The Song of Songs" to New York, where, under the management of Al Woods, it was presented by a "star" cast, headed by John Mason and Dorothy Donnelly.

There have been many attempts to be serious in such pieces as Paul Wilstack's "What Happened at 22," Owen Johnson's dramatization of his novel, "The Salamander," Basil M. Hasting's "That Sort," which was the vehicle for Mme. Nazimova, and E. H. Gould and F. Whitehouse's "What It Means to a Woman," but with dire results, for they are all in the storehouse. George Broadhurst's "Innocent" had a sensational appeal, with a sex interest; the leading rôle was played by Pauline Frederick.

Among the serious efforts of the Stage Society may be mentioned Thomas Heywood's "A Woman Killed with Kindness." At the close of the year, it is understood that this organization is in negotiation with Granville Barker to bring some of his new Shakespearean productions to this country.

Melodrama.—There have been an ample number of melodramas, both subtle and distorted, but the type has greatly changed since the days of Theodore Kremer, and now we have the actor of the legitimate stage courting the play of extreme situation and tense incident. John Mason, hitherto identified with the Thomas psychic pieces, appeared in Michael Morton's "The Yellow Ticket," and toward the latter part of the year again made his name the headliner for Owen Davis's "Big Jim Garrity"; but even dollar seats throughout the house did not save the latter play. "The Last Resort" was George Scarborough's attempt to show the corruption of our higher courts when a lawyer of honest purpose tries to follow the straight course, in consequence of which the lawyer spends a large part of his time in prison, even though popular opinion is on his side. There was much fustian in this play, which no acting of any quality could have saved.

"The Dummy" was a belated detective play, dealing with a kidnapping and how a small office boy worked hand in hand with the best detective of his day. The excitement thus offered by Harvey O'Higgins and Harriet Ford attracted audiences far into the warm weather. Roi Cooper Megrue's "Under Cover," with a phenomenal Boston run to its credit, is likely to repeat history in New York. It is another detective story in which one detective outwits another by appearing to be a smuggler. Thus equipped, he traces bribery and fraud to one of the highest customs inspectors, and wins his wife in a melodramatic manner.

The greatest sensation of the year is Elmer L. Reizenstein's "On Trial," a play cleverly constructed about a court trial, in which the evidence given by the witnesses serves to furnish the different scenes of the piece. The story of the tragedy is told backward, and quick changes of scene bring the court into view at crucial moments. There is a gripping jury room argument also, but the story is very ordinary. As a piece of technique, this is the latest evidence of the fact that the motion-picture manner of telling a story has influenced play writing.

Paul Armstrong presented what he considered to be a deep, moving problem play called "The Bludgeon," in which the child of a quarrelsome pair is used to browbeat a scientific husband, and in which the wife comes to a disastrous end; it was a useless sort of a piece, and met with a quick decision on the part of the public. In October George Broadhurst presented a melodrama which he called "The

Law of the Land," with Julia Dean. The story deals with a wife's murder of a brute husband and the efforts of her lover to save her from the clutches of the law; this is finally accomplished through the conversion of a sentimental police inspector. Altogether the theatric situations in the play serve to gloss over an unsatisfactory argument.

Decidedly the best melodrama of the year was Willard Mack's "Kick In," a crook play which gripped at every moment and was told with a fresh relish. This was partly due to the superlative acting of John Barrymore in the rôle of a crook who determines to live straight, but who is dragged into innumerable situations worthy of Poe in their gruesomeness. Mr. Mack is likewise the author of "So Much for So Much," in which he himself appeared.

In order to prove that America may have a native Drury Lane, Thompson Buchanan wrote "Life" for William A. Brady. In the number of its scenes, in the unusualness of its sets, and in the villainy of its villain, it thrilled as "The Whip" did a few seasons ago. There is some sort of a story of a wronged girl, in telling which every incident that could be dragged from the melodrama of the past is used.

"The Battle Cry," based on a novel by Charles Neville Buck, just escaped having some commendable points. The action takes place in the Kentucky Mountains. Beginning with the feud element strongly marked, the romance narrates the way in which a mere school teacher softens the heart of *Bad Anse*, a part well delineated by William Farnum. But the dramatization was clumsy and showed haste without any deep understanding of character.

In quick succession three disappointing plays were produced in December. E. Temple Thurston's "Driven" told the drab story of a woman doomed by her doctors to die within two years, and was a very poor vehicle for Alexandra Carlisle, Leslie Faber and Charles Bryant. Otis Skinner was totally miscast in a thin rôle, framed for him by Jules Eckert Goodman in "The Silent Voice," a four-act play taken from one of Gouverneur Morris's stories. The psychology of a deaf man was only feebly depicted, while his sentimental actions were scarcely consistent. Another disappointment was Kate Jordan's (Mrs. Vermilye) "Secret Strings," an improbable detective story, in which Lou-Tellegen exercised his peculiar powers, so picturesquely effective in "Maria Rosa."

One-Act Plays.—A discussion of this genre of drama very largely centers in a consideration of the policy of the Princess Players, pledged for three seasons in New York to the support of the horrific. In January a bill of five playlets was offered, and of the five Campbell MacCulloch's "The Hard Man" was the most distinctive. Maurice Level's "The Kiss in the Dark," right from the Grand Guignol, was a revolting incident dealing with the throwing of vitriol, and the torture meted out to the woman who threw it. C. M. S. McLellan's "The Fountain" was a picturesque, sentimental dream, in which Holbrook Blinn played an old gardener. Laurence Rising's "It Can Be Done" was particularly notable for the clever stage set, the rear end of a moving train. The opening bill at the Princess in the fall again consisted of five playlets, the most distinctive being a revival of Chester Bailey Fernald's "The Cat and the Cherub," in which some years ago Mr. Blinn triumphed as *Wing Shee*, a Chinese philosopher who strangles the villain of the piece. Henry Arthur Jones's "The Goal" was so devoid of brilliant story that the excellent construction could not save it, while Stanley Houghton's "Phipps," the tale of a philosophic butler, was disappointing. The rest of the bill was negligible in value. Another attempt was made in a complete change of bill, four pieces this time, one by Beulah Marie Dix, "Across the Border" being an ambitious plea for peace in four scenes, partly allegorical, and with a realistic hospital death in the end. George Ade contributed an enjoyable sketch entitled "Nettie," the study of a tough girl who never makes her appearance but who dupes three men, the last one being an old *roué*, excellently well played by Mr. Blinn. Frederick Truesdell's "The Fog" was a worthy piece of writing, reminiscent

in its gruesomeness of "The Black Mask."

During the year, in conjunction with Cyril Maude, Laurette Taylor appeared at private functions in a cleverly constructed one-word play by Frank C. Eagen; a flirtation was described by questions and responses tersely given, the whole spirit of the situation being dependent on the subtle acting. Later on in the season, Miss Taylor, tiring of her rôle in "Peg O' My Heart," gave some special matinees of three one-act dramas by J. Hartley Manners. These playlets have been published, and in no way do they show keen originality. "Happiness" is too much like "Peg" in the characterization of the little dressmaker girl, *Jenny*; "The Day of Dupes" is a boresome morality which shows the dramatist in serious mood; while "Just As Well" is the study of a feminine Lord Dundreary.

Comedy.—J. M. Barrie's "The Legend of Leonora" afforded an agreeable vehicle for Maude Adams, though in the feminine whimsicality of its theme it was not up to the usual Barrie mark. A court scene was amusingly satirized, and the womanliness of a "murderer" playfully depicted. But though the idea was delightful, the characterization and the story were both devoid of deep humanity. Catherine C. Cushing's "Kitty MacKay" was a bright little Scotch comedy, more conventional than "Bunty," and more original in the minor character of *Mag Duncan* than in that of *Kitty*. Walter Hackett's "Don't Weaken," entitled "an optimistic comedy," had much good in it but failed to be accepted because of its lack of dash.

Rachel Crother's "Young Wisdom," in which both Mabel and Edith Taliaferro appeared, had some clever gibes at the woman movement, and showed the evil effects of promiscuous reading of sex literature on the minds of two impressionable girls. A homely and bright little comedy was Frank Craven's "Too Many Cooks," showing how interfering a large family can be in the love affair of a couple who are earnestly trying to build a house in the country. Mr. Craven repeated his success begun in Broadhurst's "Bought and Paid For," by a rôle much like that of *Jimmie Gilly*. The present reviewer witnessed Charles Goddard's "The Misleading Lady" long after it had met with favor, and a passing word is necessary in order to give an excellent comedy its deserved place in theatrical history. Augustin MacHigh, in "What Would You Do?" failed to score a success, the dullness of the lines, story, and situations being far removed from the brightness of the same author's "Officer 666."

Billie Burke was presented by Charles Frohman in a coarse little drama by Catherine C. Cushing, called "Jerry," in which a recalcitrant girl wins the sweetheart she wants but is not destined for. A splendid revival of "The Truth" well exhibited the fresh quality in Clyde Fitch's play; it was excellently presented, though Grace George did not erase the past impression of Clara Bloodgood. In "The Charm of Isabel" Sidney Rosenfeld tried to make appealing the story of the girl who couldn't say no; his effort met with cold reception. Then William A. Brady presented his daughter Alice in two impossible comedies, Robert Housum's "Sylvia Runs Away," and George Scarborough's "What Is Love?" Even John Drew's comedy attempt at the beginning of the theatrical season was a failure, Michael Morton's "The Prodigal Husband," the story of a ward's efforts to bring an estranged couple together; Jessie Glendenning was the leading lady.

Making her farewell to the stage, Mrs. Thomas Whiffen was starred with Charles Cherry and Ann Murdock in "The Beautiful Adventure," an amusing little piece, showing the natural gravitation of a couple toward free love, and an old lady's innocent hastening of risqué situations; the piece was bright and in parts well written. Ruth Chatterton in Jean Webster's dramatization of her popular story, "Daddy Long-legs," is having a long run, owing to the sweetness of its plot, and the daintiness of its acting.

Mrs. Patrick Campbell is in America with Shaw's "Pygmalion" and a revival of Pinero's "The Second Mrs. Tanqueray." The Shaw piece deals with a professor of phonetics who pledges himself to turn a cockney flower girl into a grand lady merely

by the changing of her uncouth language. The character of the girl's father, *Mr. Doolittle*, is the mouthpiece for social preachment. Mrs. Campbell was brilliant, though years have made her too mature for the rôle of a girl. An amusing comedy imported from England was Cyril Harcourt's "A Pair of Silk Stockings," rather coarse in its middle-class atmosphere, but agreeably rich in its characterization. One of the best comediennes of the day is Marie Tempest, who is now in America on a "farewell" tour. As her first play she gave a delightful high comedy by Henry Arthur Jones, called "Mary Goes First." It is now published in the Drama League Series. Then there followed Anthony P. Wharton's "At the Barn," which, granting an impossible situation, was entertaining in the quality of comradeship in the scenes that follow a young woman's thrusting herself into the home of an author, unknown to her, but affording convenient shelter from a man she is trying to escape. The third piece was Miss Tempest's former success, "The Marriage of Kitty," by Cosmo Gordon Lennox. In her entire repertoire Miss Tempest showed vivacity, and brilliant technique.

A play of novel construction was A. E. Thomas and Clayton Hamilton's "The Big Idea." Before the audience the very play they are witnessing is written, and were it not for the confusion resulting from the effort on the part of the observer to keep the conflicting elements from mixing, the novelty of the situations would be distinctive. Ethel Watts Mumford, following in the footsteps of Rachel Crothers' "Young Wisdom," wrote a play called "The Young Idea" for Lydia Lopokova, better known as a dancer of exquisite grace. The lines of the piece are most ironical in the mouth of the little heroine who returns to America from abroad filled with notions concerning eugenics and advanced marital relations. The society atmosphere of the play was thoroughly artificial and consciously caricatured.

As his first offering at the Bandbox Douglas Wood presented Jerome K. Jerome's "Poor Little Thing," an adaptation from Jules Lemaître. It is a study of the middle-age love of an artist who has everything to make him happy, but whose heart flares up in one last effort to retain the feelings of youth.

There were other comedies too numerous to mention here, but it may be said that unsuccessful attempts were made by Henry V. Esmond and Eva Moore in "Eliza Comes to Stay," and by Rose Stahl in "A Perfect Lady." H. F. Rubenstein's "Consequences," with its problem of intermarriage between Jew and Gentile, had only a short run, though the excellence of its dialogue gave it unusual value.

Farces.—With passing comment we note the appearance of William Collier in "A Little Water on the Side," written by Mr. Collier in collaboration with Grant Stewart. Also "A Pair of Sixes," by Edward Peple, made somewhat of a stir by the noise of its farcical situations arising from a quarrel between two owners of a patent medicine. Lew Fields elected to appear in "The High Cost of Loving," an adaptation from the German, while Margaret Mayo's contribution was "Twin Beds," variously advertised in doubtful manner. A good farce of the year was "He Comes Up Smiling," by Byron Ongley and Emil Nyitray, Douglas Fairbanks taking the part of a hobo youth who wins his way to fortune by a cool head and American "push." Roi Megrue and Walter Hackett are the co-authors of one of the best farces imaginable. From the moment the curtain rises on the delectable situation of a son starting out to beat his own father at the game of making soap, there is limitless opportunity for mirth. And withal, there is a genuine liking for the youth who fights against odds, using as his slogan the title of the piece, "It Pays to Advertise." The failures in the field of farce are too many to mention. In fact during the year the unprofitableness of theatrical productions has never been so fully exemplified.

XXXI. LITERATURE AND LANGUAGE

AMERICAN LITERATURE

(Nov. 15, 1913, to Nov. 15, 1914)

EDWARD EVERETT HALE

Fiction.—The greatest productivity in creative literature has been, as usual, in works of fiction, although the publication of novels has been at least somewhat less than in 1913. It is impossible to present exact statistics on this subject; the entire production of fiction in books and periodicals of all kinds is now so very great that no one makes an attempt to comprehend it. Even in the limited statistics of the *Publishers' Weekly*, which include books only and not all of them, the term "fiction" is so vague that comparison with other figures does not indicate very much. But lists formed in about the same way in 1914 and 1913 of books designed to appeal to a cultivated audience would give rather fewer American novels in 1914—about 300 books which come to some sort of notice. Of English books republished in America the proportion is smaller than in 1913.

Since our review closes with Nov. 15, we note little of the influence of the great event of the year. The war broke out in August, by which time arrangements had already been made for fall publication. The influence of the war on literature, and doubtless it is deep, must so far be sought in newspapers and periodicals; the novels of the year show little general difference from those of any other year.

Although there are still, as there have been for a good while, a great many tales of mystery, adventure or romance, yet there appears to be a growing proportion of books which show or affect to show some more serious object on the part of the author than the amusement only or the recreation of the reader. Books are still advertised as a delightful relief from "psychological" or "problem" novels, but such appeals are probably made to a particular class of readers. The appeal of the best fiction is more and more to a serious interest. The year, however, has not produced any such large set of life-experiences as appeared in 1913; in that year, as was noted in the last issue of the YEAR BOOK (p. 788), there was a considerable number of books of this kind, biographical if not autobiographical. Theodore Dreiser continues his chronicle of the American financier in *The Titan* (Lane); like its predecessor, the book is astonishingly vivid in spite of its elaborate detail and its lack of formal construction. Mary S. Watts's *The Rise of Jennie Cushing* (Macmillans) is the story of a waif of the slums, whose life brings her into touch with many of the strongest currents of contemporary life. Gertrude Atherton's *Perch of the Devil* (Stokes) shows quite an original figure against a background of mining life in Montana. Robert Herrick's *Clark's Field* (Houghton, Mifflin Co.) is an account of the life of a young girl who inherited undeserved wealth. Kathleen Norris's *Saturday's Child* (Macmillans) is the story of one who has to "work for a living" and presents a real achievement in life, a vital part of the great world. The anonymous *Altogether Jane* (Kennerley), a book of ability in spite of serious faults, is the autobiography of a woman writer of the day. Such books always deal somewhat with the questions and interests of the time, as seen from the angle of some particular character. There are more books

which are discussions of a more general nature. Josephine D. Bacon's *Today's Daughter* (Appletons) gives the experience in marriage of the daughter of Dr. Stanchon and of several of her friends; problems arise to which the doctor offers solution, less convincing as a rule than the earlier labors of the great alienist. Owen Johnson in *The Salamander* (Bobbs, Merrill Co.) offers the reader a study of a specific type created by our modern city conditions, but the general appeal of the book is emotional rather than sociological. Much the same thing may be said of the anonymous *Home* (Century Co.), a much truer book, which would be interesting (and probably often is) without its constant implication of the saving power of the ingrained habits and affections of home. George R. Chester, whose "Wallingford" stories have been regarded by some as exhibitions of a phase of American life, comes out more strongly (with Lilian Chester) in *The Ball of Fire* (Hearst International Library Co.), which gives a good deal of real criticism of religion and finance as they exist in our large cities. We cannot say whether Mr. Chester would consider his amusing *Tale of Red Roses* (Bobbs, Merrill Co.) a sociological study; it gives a picture (rather conventional and journalistic) of a political boss. Another book dealing with religion more directly and less successfully is George Kibbe Turner's *The Last Christian* (Hearst), which tells of the gradual wasting away of a country congregation. A certain immediate interest attaches to Frederick Palmer's striking *The Last Shot* (Scribners), though perhaps to its disadvantage, for current events have such an intensity that fiction pales before them. Samuel H. Adams's *The Clarion* (Houghton, Mifflin Co.) is an excellent story of a man who bought a newspaper and insisted on running it on a clean and independent basis. Will N. Harben's *The New Clarion* (Harpers) deals with much the same subject in the Alabama setting in which the author is at home. The anonymous *The Goldfish* (Century Co.) presents itself as the actual confessions of a successful man; it is not necessary that it should be a fact to be of interest. Perhaps we may mention here the very popular *Eyes of the World* by Harold B. Wright (Book Supply Co.), in which the author criticises very severely the literary and artistic circles of our day. A few books deal with questions of marriage. M. H. Urner's *The Woman Alone* (Hearst) gives a drab view of an affair with a mistress, and Basil King's *The Letter of the Contract* (Harpers) is the story of a divorced woman. Most of these novels go straight at their subject; Mitchell Keays's *Mrs. Brand* (Small, Maynard & Co.), however, while full of modern ideas, presents them with clever satire, and Jesse L. Williams' *So They Were Married* (Scribners) is also amusingly put.

Next to such books would come the books inspired by the tone or feeling of some place or some particular phase of life. Here one must speak first of George W. Cable's *Gideon's Band* (Scribners), in which are gathered the character and sentiment of a phase of life now passed away, the steamboat life on the Mississippi. And we should place next it the work of another of those who did so much to make "local color" interesting to Americans, namely, Charles Egbert Craddock, whose last book, *The Story of Duciehurst* (Macmillans), is of Mississippi rather than of the mountains by which she first became known. The Southern mountains are not so prominent in fiction as they were in 1913, but we must note Lucy Furman's *Sight to the Blind* (Macmillans), which ought to receive mention as a study of mountain life, though perhaps not accurately under the head of fiction. Joseph C. Lincoln, who is best known for his pictures of Cape Cod life, now gives one by contrast; in *Kent Knowles, Quahaug* (Appletons), a Cape Cod pair go abroad, and in *Cap'n Dan's Daughter* (Appletons) a Cape Cod family inherit money and make an experiment in the society life of a city.

But American fiction has rather diverged from the story of local color of the last century, which aimed chiefly at the portrayal of particular places and phases of life, often close at hand and well known. There are a great many books of distinctive color and atmosphere, but it is rarely very

carefully studied, and generally makes its appeal by its out of the way romance, rather than by its familiar realism. There have been in 1914 a great number of stories of the ranch, often very good. H. M. Knibbs's *Overland Red* (Houghton, Mifflin Co.) adds to the general interest of ranch life and incident a curious character combined of the tramp and the cowboy; B. M. Bowers' *The Ranch at the Wolverine* (Little, Brown & Co.) also has more effort at character than some of the author's other books; J. Gregory's *Under Handicap* (Harpers) besides its atmosphere has a good idea at bottom; Zane Gray's *The Light of Western Stars* (Harpers) has that writer's usual appreciation of the great expanses of the Southwest; Dana Coolidge's *Batwing Bowles* (Stokes) makes a good case for the tenderfoot. There are a large number of novels of the woods, chiefly the Canadian, some by well-known writers, as Ralph Connor's *Patrol of the Sun Dance Trail* (Revell), Harold Bindloss' *For the Allinson Honor* (Stokes), H. Footner's *Sealed Valley* (Doubleday, Page & Co.), and Virgie Roe's *The Primal Lure* (Dodd, Mead & Co.). There is an unusual freshness in B. W. Sinclair's *North of Fifty-three* (Little, Brown & Co.), a fine flavor of the woods in Stanley Washburne's *Two in the Wilderness* (Lippincotts), and an especial wintry touch in Alice Jones's *Flame of Frost* (Appletons). J. O. Curwood in *Kazan* (Bobbs, Merrill Co.) has given the story of an escaped sledge-dog who returns to his own kind. Along with these belong two or three books of achievement, as one might say: Ridgewell Cullom's *The Way of the Strong* (Jacobs) is the story of a superman in Alaska and the wheatfields of Canada; Francis Lynde's *The City of Numbered Days* (Scribners) is the tale of a great immigration project; Ednah Aiken's *The River* (Bobbs, Merrill Co.) is the story of the bridling of the Colorado River. Of course our writers range far abroad, but there are not so many exotics in 1914 as is often the case. One of them is among the best books of the year; Samuel Merwin's *Anthony the Absolute* (Century Co.), the story of two Americans in Japan, has a fineness of feeling and a gift of character that are rare. Mary H. Bradley's *The Palace of Darkened Windows* (Appletons) is an Egyptian adventure, and *Felicidad* by R. Thomas (Little, Brown & Co.) is of an island in the Pacific. There are a good many stories of adventure, but none which have attracted much attention. The chief is Jack London's *The Mutiny of the Elsinore* (Macmillans), a book which takes us back to the author's earlier days. L. J. Vance in *The Lone Wolf* (Little, Brown & Co.), the story of a reformed Apache, is good but not quite up to the possibilities. We need only mention G. B. McCutcheon's *The Prince of Graustark* (Dodd, Mead & Co.). Here (as well as elsewhere) may be put that remarkable compound *Diane of the Green Van* by Leona Dalrymple (Reilly & Britton), an extraordinary reminiscence of almost all kinds of fiction previously known, from the novel of the open road to the story of international intrigue. There are many detective stories but no new ideas of importance. H. K. Webster's *The Butterfly* (Appletons) has charm and fancy as well as the usual ingeniousness. Anna Katherine Greene's *Dark Hollow* (Dodd, Mead & Co.) has her usual astonishing and well sustained mystery. R. Gillmore's *The Alster Case* (Appletons) has one very ingenious element which we do not remember ever to have met with before. His *The Opal Pin* (Appletons) is not so good, nor Carolyn Wells's last, *Anybody but Anne* (Lippincotts). N. S. Lincoln's *The Man Inside* (Appletons) is better.

Of historical novels there are none so good as the best of earlier years. Mary Johnston's *The Witch* (Houghton Mifflin Co.), a somber story of free life and the power of superstition in the days of Elizabeth, though finer in its conception than her earliest work, lacks some in its working out. Thomas Dixon's *The Victim* (Appletons) is a picture of Jefferson Davis and will be at once compared with his previous view of Abraham Lincoln; we do not esteem it so highly, either in its historical accuracy or its literary power. In *The Hidden Children* (Appletons) Robert W. Chambers fills out the series of historical novels which he conceived years ago, and which, we feel, shows

him at his best. There are a number of other novels of American history. Crittenden Marriott's *The Ward of Tecumseh* (Lippincotts) is a good story of the wilderness after the Revolution. Beulah M. Dix's *Maid Melicent* (Hearst) is a story of Puritan and Cavalier in the Massachusetts colony. Marah E. Ryan's *The House of Dawn* (McClurg) is an interesting story of Mexico in the days of the Spaniards. Several are of the Civil War: Randall Parrish's *The Red Mist* (McClurg), E. Cummings' *Marmaduke of Tennessee* (McClurg) and Kate and Virgil D. Boyles' *The Hoosier Volunteers* (McClurg). In Newell D. Hillis' *The Story of Phaedrus* (Macmillans) and Henry Van Dyke's *The Lost Boy* (Harpers) we have a filling out of conceptions suggested by the Bible.

Such a summary, although based on some very obvious lines of interest both on the part of author (as it would seem) and of the reading public, fails to include many books which are neither markedly realistic nor romantic. Some of the best novels of the year belong to neither group. Julian Hinckley's *E* (Duffield) is one of those books which present a large view of society with all sorts of people; it might be compressed to advantage, but even as it stands it displays admirable appreciation of character and of the real courses of life. Coningsby Dawson's *The Raft* (Holt) has the romantic and poetic feeling which was so attractive in *The Garden without Walls* and the same appreciative feeling for childhood. Marie Van Vorst's *Big Tremaine* (Little, Brown & Co.) is a fine and well told story of Southern life in spite of some veiled inconsistencies and conventionalities. Rex Beach in *The Auction Block* (Harpers) is not so happy in his views of social life as in the rougher element where we learned to know him. We should note among the well-told love stories rather out of the common run, Louise K. Mabie's *The Lights are Bright* (Harpers), Henry Miller's *The House of Toys* (Bobbs, Merrill Co.) and Jennette Lee's *The Woman in the Alcove* (Scribners). Among the noteworthy books of the year are some which depend for their interest upon some original or well drawn character. In *The Poet* (Houghton, Mifflin Co.) Meredith Nicholson gives an appreciation of Eugene Field that will extend to many the affection which was formerly more confined; in *Penrod* (Doubleday, Page & Co.) Booth Tarkington (encouraged perhaps by the reception of the younger brother in *The Flirt*) gives a study of boy character. Finally we shall note the humorous books and the extravaganzas. Chief among the former is W. J. Hopkins' *Burbury Stoke* (Houghton, Mifflin Co.), so genuinely excellent that it is a shame to speak of it merely as humorous. As for the extravaganzas the most successful is E. D. Biggers' *Love Insurance* (Bobbs, Merrill Co.), which, when you once grant its frank impossibility, goes on with great spirit and interest.

Short Stories.—But a small proportion of the short stories written ever appear in book form, and an analysis of those which do appear would signify little. Some of them, however, should be recorded if nothing more. Mary Wilkins Freeman's *The Copy Cat* (Harpers) is a collection of her well known New England portraits. Zona Gale's *Neighborhood Stories* (Macmillans) offer as good a picture of the Middle West and have a real value as social suggestion beside their value as stories. Less attractive but equally good are Mrs. Van de Water's stories of married life in *The Shears of Delilah* (Putnams). Some of these collections are grouped around a character. Lucy Pratt's *Ezekiel* and *Ezekiel Expands* (Houghton, Mifflin Co.) are remarkable pictures of a little negro boy; in this one slight figure Miss Pratt has summed up the history and character of a race. Two collections continue the depiction of character already known to us: Julie Lippman's *Martha and Cupid* (Holt), a record of Martha as wife and mother, and Edna Ferber's *Personality Plus* (Stokes), a view of Emma McChesney as developed by her son Jock. There are a number of detective stories: A. B. Reeves in *The Dream Doctor* (Appletons) is ultra-scientific in his applications of science to the discovery of mysteries and crimes, while Percy Brebner's *Christopher Quarles* (Dutton) returns to the pure intellectuality of the great original. There

is an excellent collection of Charles G. D. Roberts' animal stories in *Hoof and Claw* (Macmillans).

Biography. — As usual there are many good biographies and autobiographies, the latter generally the more interesting. These reminiscences, memories and what not have an appeal and value as evidence or revelation of American life. First in most minds will come Brand Whitlock's *Forty Years of It* (Appletons), the story of a fine kind of American democrat, with views of two others of the same sort, "Golden Rule" Jones and Tom Johnson of Cleveland. Another book equally striking is *In My Youth* (Bobbs, Merrill Co.), said to be by Robert Dudley, which gives a personal view of a most interesting phase of the life of our country now for ever passed away; it is a view of the Middle West in the making, a phase of life so near as to be remembered by a few and yet so different from our own time as to seem a different epoch. There are two memorials of successful and well known men, the *Memories of My Youth* (Putnams) by George Haven Putnam, and *My Autobiography* by S. S. McClure (Stokes), two curiously different books, but with much in common as American documents. Here, too, should be placed two other records of Americans. Edward A. Steiner is well known by his work with the immigrants and his story *From Alien to Citizen* (Revell) will be read with sympathy by many. Another book equally worthy of note is A. M. Rihbany's *A Far Journey* (Houghton, Mifflin Co.); the author is an American who twenty years ago landed in America practically penniless, and is now the clergyman of an influential church in one of our large cities. A very different kind of career is that of Al Jennings, told in *Beating Back* (Appletons), who began as a cowboy, became an outlaw and a convict, and has by this time got so far back as to carry the Democratic primaries in Oklahoma for the nomination for governor, although he failed of election. Two other views of life may be interestingly compared: Gen. F. Funston's *Memories of Two Wars* (Scribners) is a most exciting story, though told in a plain and unadorned fashion, of a man who leaped almost at a bound into position and public notice which experience shows to have been amply deserved. W. L. Comfort's *Midstream: A Chronicle at Half Way* (Doran) is a much more vigorous presentation of a life that by its very nature was one of thought rather than action.

Besides these books, of which several would most properly be considered autobiographic, are several other collections of material. Henry James in *Notes of a Son and Brother* (Scribners) would seem to claim no higher title for this second volume of his reminiscences. We are not clear as to whether the chief value of the book is biographic or autobiographic, but value there surely is. Horace Traubel's third volume of *Walt Whitman in Camden* (Kennerley) continues a work so well known as to need no description. Another book of exceptional value is *Little Women Letters from the House of Alcott* (Little, Brown & Co.) by Jessie Bonstelle and Marian de Forest, which gives a better and more comprehensible idea of Bronson Alcott than would be gathered from many more elaborate biographies.

Of true biographies, the finished records of lives esteemed great, there are not very many, though some are noteworthy. *The Letters and Journals of S. F. B. Morse* (Houghton, Mifflin Co.) is a much needed account of a most distinguished American based on much private material. Equally important is *Our Friend John Burroughs* (Houghton, Mifflin Co.) by Clara Barrus. Here also we have much that is autobiographic; indeed the book is rather material for a life than an attempt even at a final estimate and judgment. The same thing may be said of *Thomas Wentworth Higginson* (Houghton, Mifflin Co.) by his wife, a valuable record of the history of our country during the last century. Different in character are the *Confederate Portraits* (Houghton, Mifflin Co.) by Gamaliel Bradford, a series of careful historical studies. Winifred Holt's *A Beacon for the Blind* (Houghton, Mifflin Co.) is the life of Henry Fawcett. The author was led to this subject by her devotion to the cause of the blind, for Henry Fawcett lost his sight at the

age of twenty-five. She has given her book a good name, for it convincingly shows what remarkable things can be accomplished by courage and character.

Poetry.—The poetry of the year comes, to the chronicler at least, as the product of many conflicting and confusing influences. Groups and categories form and dissolve and reform with an irregularity distressing to the systematizer and delightful to the lover of poetry. Some very obvious tendencies may be noted; one is toward a sort of democracy. Walt Mason still prints the quintessence of the commonplace (no easy matter to get at) in the appearance of prose in the corner of the daily papers. Vachel Lindsey in *The Congo and Other Poems* (Macmillans) is said to be the poetic expression of the Middle West. Arturo Giovanitti (*Arrows in the Gale,* Hillacre Book House) presents his testimony in words to go with the socializing testimony of his act. Patrick MacGill, ex-ditch-digger and navvy, sings of the "underworld, the great oppressed" in *Songs of the Dead End* (Kennerley). Miss Harriet Munroe in *You and I* (Macmillan) writes of the Panama Canal, the turbine, the telephone, State St., Chicago, and other modern matters. Conrad Aiken in *Earth Triumphant* (Macmillans) feels that a story is the thing that all will listen to.

This democratic tendency showing itself in the stuff of poetry, also finds expression in form in the work of several poets who express themselves in free rhythms. Among these we note Amy Lowell (*Sword Blades and Poppy Seed,* Macmillans), who has not only won recognition for her work in practice, but has presented her principles in theory in an essay on *vers libre.* Arthur Stringer does likewise in *Open Water* (Lane). It is not possible in a record to discuss such matters: we had supposed that Heine and Walt Whitman and Henley had made it possible for a poet to express himself as he chose without explaining that rhyme and rhythm were not among poetic necessities. James Oppenheim, however, does not think so, for he has explanations for the "polyrhythms" of his *Songs of the New Age* (Century Co.). Horace Traubel, of course, in *Chants Communal* (A. and C. Boni), offers no explanation for continuing the Whitman tradition.

All these are in a measure innovators, rebels in a world where there are many who are content with the old paths. Of these others we count the most original Robert Frost, whose *North of Boston* (David Nutt), though it may be compared with others in being blank-verse pastoral, has such fine and intense sincerity as differentiates it at once. Paul Laurence Dunbar's complete poems, most of which were known before, have been published. Others already known have published during the year: Coningsby Dawson's *A Night in Florence* continues the stroke of imaginative idealism which we found in his earlier poems; Edward S. Martin (*Poems,* Scribner), the late Madison S. Cawein (*Minions of the Moon,* Stewart & Kidd) and Henry Van Dyke (*The Grand Canyon,* Scribners) are too well known to call for more than record of their new volumes.

Essays and Criticism.—In the field of criticism nothing is so worthy remark as *Notes on Novelists* by Henry James (Scribners). Whatever one may think of James' creative work, there can be no question that the utterance of one who for half a century has been a close observer of the fiction of the world has a distinction rarely equaled. There will be many who will hold that James cannot write with sympathy, hardly even with openmindedness, on one-half of the field of fiction. Yet with this book as with his early criticisms, one is glad to take what there is without quarreling over what there is not. Another book by a veteran, though not exactly in this present field, is *Mont St. Michel and Chartres* (Houghton, Mifflin Co.) by Henry Adams. Mr. Adams is well known as an historian of our own land, but here he devotes himself to a presentation of the medieval spirit in architecture, poetry, and philosophy. Another important book is *The Challenge of Facts and Other Essays* (Yale University Press), a continuation of the series of writings of the late William G. Sumner, a book of wide significance, if it properly represents the influence of the author. Of books by men still in the har-

ness, as one might say, one that has attracted a good deal of attention is Richard C. Cabot's *What Men Live By* (Houghton, Mifflin Co.), an analysis of the main elements in life. The most considerable work of criticism is that by W. C. Brownell entitled *Criticism* (Scribners). In the practice of literary criticism Alden Sampson's *Studies in Milton* (Moffat, Yard & Co.) should be particularly remarked and in later literature Archibald Henderson's *The Changing Drama* (Holt), a work showing wide reading and great skill in perceiving system in the chaotic conditions of the modern theater. Another piece of criticism is Kenyon Cox's *Artist and Public* (Scribners), a book by a master of painting which yet deals with the subject in a simple and unprofessional manner. We note also two books of a kind which seems to arise particularly from the legal profession. John Marshal Gest's *The Lawyer in Literature* (Boston Book Co.) and Theron G. Strong's *Landmarks of a Lawyer's Lifetime* (Dodd, Mead & Co.) are somewhat more interesting to the lawyer than to the lay reader, but they well deserve reproduction in book form.

MODERN LANGUAGES AND LITERATURE

GERMANIC LANGUAGES AND LITERATURE

DANIEL B. SHUMWAY

German Fiction and Drama.—The steadily increasing interest in German literature is shown by the large number of dramas and novels that have been translated during the year. Volumes III and IV of Lewissohn's translation of Hauptmann's works have appeared, volume III containing the domestic dramas, *The Reconciliation* (*Friedensfest*), *Lonely Lives* (*Einsame Menschen*), *Colleague Crampton* and *Michael Kramer*, and volume IV three symbolic and legendary dramas, *The Assumption of Hannele, The Sunken Bell*, and *Henry of Aue*. K. Holl has published a biography of Hauptmann containing much valuable and hitherto unknown material relative to the poet and his works. Hauptmann's latest play, *Der Bogen des Odysseus* (Lemcke), has been issued in America. Sudermann is represented by an edition of his recent historical play, *Die Lobgesänge des Claudius* (Lemcke). A number of Schnitzler's plays have been translated by H. B. Samuel (McClurg), and Björkman has also translated three of his plays, *The Lonely Way, Interlude*, and *Countess Mizzi*. Hofmannsthal's one-act play, *Death and the Fool*, has been rendered by Elizabeth Walter (Badger). Three plays of Hebbel have also appeared in Dutton's "Everyman's Library." Garnet Smith has an interesting sketch of the development of German drama from the beginnings of the naturalistic movement down to the present time in the *Quarterly Review* for January. Count de Soissons treats of "Recent Dramatic Movements in Germany" in the *Contemporary Review* for February, the study covering selected works of Sudermann, Schmidtbonn, Elsner, Rapp and Stucken. Amelia von Ende discusses in the *Nation* (xcviii, 370) the latest dramas of Sudermann, Wedekind, Halbe, Eulenburg, Thoma and others. A study of the *Continental Drama of To-day* has been published by B. H. Clark (Holt).

German fiction is equally well represented. At the head of the list stands a translation by G. C. Page of Goethe's famous novel *Wilhelm Meister's Theatrical Mission*, with an introduction by Harry Mayne. Gottfried Keller's charming idyl, *Village Romeo and Juliet*, has been translated by A. C. Bahlmann, with an introduction from the pen of Edith Wharton (Scribner). Bertha Suttner's recent novel, *When Thoughts Will Soar*, dealing with the feminist movement, has been done into English by N. H. Dole (Houghton). Wolzogen's humorous musical story of Weimar and Lizst has been translated under the title of *Florian Mayr* by E. W. Breck and C. H. Genung (Huebsch). Herzog's well-known musical novel, *Das Lebenslied*, has been rendered by Adele Lewisohn under the title *Story of Helga* (Dutton). Paul Schreckenbach's powerful historical romance, *The King of Rothenburg*, translated by A. L. Book-

staver (Badger), will delight all lovers of that quaint town. Very timely is the translation by Stella Bloch of Walter Bloem's *The Iron Year*, presenting as it does a graphic picture of certain phases of the Franco-Prussian War. Fred. Eisemann has published in translation six of Schnitzler's erotic and mystic tales under the title of *Viennese Idylls* (Luce). Two other tales of the same author, "She Never Knew" and "Dead Men Tell No Tales," have been rendered by Beatrice Marshall in the *Fortnightly* for January and June. In an illuminating article on "Recent German Fiction" (*Nineteenth Century*, March) Dorothea Gerard gives detailed accounts with extracts of new novels by Kellermann, Bartsch, Schnitzler, Mann, Ertl and Stratz. Amelia von Ende discusses in the *Nation* of July 9 novels by Hegeler, Lietger, Thoma and Ehrenstein.

German poetry is represented by a translation of Heine's *Poems and Ballads* by Robert Levy (Macmillan) and by a rendering of his masterly satire *Atta Troll* by Herman Scheffauer (Huebsch).

Among the essays on German literature the most pretentious is A. W. Porter's *Outlines of German Romanticism* (Ginn), intended as a manual for students and treating the subject in a novel fashion. Porterfield has also written on "Poets as Heroes of Epic and Dramatic Works in German Literature" in *Modern Philology* for June. Other important essays are: C. E. Vaughn, *Influence of English Poetry on the Romantic Revival on the Continent* (Oxford); R. W. Macan, "Goethe in Rome" (*Fortnightly*, January); Charles Handschin, *"Goethe's Abfall von der Gotik"* (*Mod. Phil.*, June); F. H. Adler, *Herder and Klopstock, a Comparative Study* (Stechert); Fritz Winther, *Das Gerettete Venedig* (Univ. of Cal.); Ernst Feise, *"Zur Entstehung, Problem und Technik von Goethe's Werther"* (*Jour. of Eng. and Ger. Phil.*, January); Fred. C. Braun, "Margaret Fuller's Translation and Criticism of Goethe's Tasso" (*ibid.*, April).

Germanic Philology.—In this field the following important articles and monographs have appeared: Harry F. Colling, "The Language of Freytag's *Ahnen*" (*Jour. of Eng. and Ger. Phil.*, April), showing his frequent use of foreign words and archaisms; Philip Seiberth, "A Study in the Principles of Linguistic Change" (*ibid.*, January); F. A. Bernstorff, *Use of the Word "Derselbe" from the Classic Period of German Literature to the Present Day* (Banta); Bruno Boezinger, *Das historische Präsens in der älteren deutschen Sprache* (Leland Stanford Univ.). Leo Wiener made an unsuccessful attempt to prove that the Gothic Bible does not represent the language of Ulfilas in an article entitled "Philological Fallacies" in the *Nation* for May 7 (see also *ibid.*, June 11). In the Old High German period F. A. Wood has well rendered the *Hildebrandslied* into English alliterative verse (Univ. of Chicago Press). In Middle High German T. W. Rolleston has retold *Parsifal, or the Legend of the Holy Grail* (Crowell); Jessie L. Weston, in *The Quest of the Holy Grail*, has given a clear account of the various sources and the theories pertaining to this complicated subject. Gertrud Schoepperle has published a thorough and systematic study of the sources of *Tristan and Isolt* (Ottendorfer Series of German Monographs). H. A. Guerber in his *Book of the Epic* treats of the *Nibelungenlied* and other German epics. Julius Goebel contributes an article on the art of Walther von der Vogelweide to the April issue of the *Journal of English and German Philology*.

German-American Relations.—In this field a new annual has been launched, *Amerikanische Geschichtsblätter*, edited by Julius Goebel. It contains a large number of valuable articles on German settlements and migrations in America. J. T. Ochs' work, *Der Deutsche Amerikanische Farmer*, discusses the part played by the German-Americans in the colonization of the United States. Preston A. Barba has continued his studies of the influence of America on German literature with an article "Cooper in Germany" (*German-American Annals* for January), and A. B. Faust has published the "Graffenried Manuscript C," the most complete of the manuscripts relating to the settlement of Newbern, N. C. (*ibid.*).

German Texts and Teaching.—In this field, for want of space, only a few of the most important texts can be mentioned. A new edition of Schiller's *Braut von Messina* has been prepared by K. H. Breul (Putnam); Frenssen's *Jörn Uhl*, edited by W. W. Florer (Heath); Carl Schurz's *Lebenserinnerungen* by Edward Manly (Allyn & Bacon); Spielhagen's *Das Skelett im Hause* by Marie Goebel (Oxford German Series). Mrs. Collitz has published a second volume of her German anthology under the title *Selections from Classical German Literature*, comprising selections from the reformation period to the beginning of the nineteenth century. G. O. Curme has written a *First German Grammar*, a skillful combination of grammar and reader. In the department of teaching the University of Wisconsin has issued an *Experimental Study of Methods of Teaching High-School German* from the pen of M. M. Clarahan; and C. H. Bell has compared German and American schools and educational methods in "Experiences of an American Exchange Teacher in Germany" (*Educational Review*, January).

Swedish.—In this field the activity in translating Strindberg's works continues unabated. Edith and Warner Oland have published *Swanwhite*, *Advent* and *The Storm* (Luce); Clara Fried has rendered *Advent* (Badger) and *Fair Haven and Foul Strand* and *The Growth of a Soul* (McBride, Nast); Elizabeth G. Westergren and Ellie Schleussner have each translated Strindberg's story of the East Skerry Islands, the one under the title *On Seaboard*, the other *By the Open Sea;* Edwin Björkman has contributed the additional translations *After the Fire, Debt and Credit, The Thunderer, Advent* and *Simoon*. Selma Lagerlöf's romantic picture of old Swedish life has been well translated by Anna Barwell as *Liliecrona's Home* (Dutton); selected tales of the same authoress have been edited in the original for American schools by Jules Mauritzson under the title *Valda Berättelser* (Augustana Book Co.). Tegner's *Fritiof's Saga* has likewise been edited by A. O. Stromberg (*ibid.*). Ellen Key's *Renaissance of Motherhood* has been rendered by Anna E. B. Fries (Putnam) and Hilles Grane's *Song of the Rose* by A. W. Kjellstrand (Augustana).

Norwegian.—In this field William Archer has published an entirely revised edition of his well-known translation of Ibsen's works (Scribner). A number of Ibsen's plays, including *The Pretender*, *The Pillars of Society*, etc., have been translated by R. F. Sharp for "Everyman's Library" (Dutton), and G. B. Shaw has continued his *Quintessence of Ibsen* down to the latter's death (Brentano). Björkman has finished a second series of Björnsen's plays, comprising *Love and Geography*, *Beyond Human Might* and *Laboremus* (Scribner), accurate but somewhat marred by vulgarisms and Germanisms. Knut Hamsun, a novelist of some prominence, though little known here, is now represented for the first time in English in the translation by Carl C. Hyllested of his novel, *Shallow Soil*, a study of young Norway. Norse sagas are represented by the *Song of Frithiof*, retold in modern verse by G. C. Allen (Doran), by the Icelandic saga of *Grettir the Strong* of the eleventh century translated by G. A. Hight (Dutton), and by *Svold, a Norse Sea Battle*, a poem by S. F. B. Lane (Scribner). Andersen's *Fairy Tales and Other Stories* have been revised and in part newly translated by W. A. and J. K. Craigie (Oxford); Asbjörnsen's *Norse Fairy Tales* by G. W. Dasent (Lippincott), and *Norwegian Folk and Fairy Tales* by H. L. Braeksted under the title *Round the Yule Log* (Lippincott). In the *Nation* (xcviii, 206) Arne Kildal discusses recent Scandinavian plays and novels, calling special attention to Heiberg's *Bed of State* (*Paradesengen*), dealing with the sickness and death of Björnsen, as the most sensational book of the season in Norway. The attempt that is now being made to reinstate the ancient language of Norway, the *Landsmaal*, as a literary tongue is discussed by Ingebright Lillehei in the *Journal of English and German Philology* for January, and by E. M. Bacon in the *Dial* for March 16, the former believing it will be successful, the latter, whose article is entitled "Anti-Babel," doubting it.

Danish.—The revived interest in Holberg noted in the last issue (p. 798) is shown by a study of his comedies by O. J. Campbell (Harvard Univ. Press). Two plays of Hjalmar Bergstrom, *Karen Borneman*, a plea for the sex freedom of women, and *Lyngaard and Co.*, dealing with industrial conflicts, have been translated by Edwin Björkman (Kennerley). G. H. Borrow has rendered *Danish Romantic Ballads* into English (Putnam). Franz de Jessen's *Katya*, a romance of Russia, has been translated from the Danish by W. J. A. Worster (Luce), Jens Jörgensen's *Lourdes* by Ingeborg Lund with a preface by Hillaire Belloc (Longmans), and Martin Nex's *Pelle the Conqueror* by Jesse Muir (Holt). H. J. Hanson has published a comparative Norwegian-Danish-English dictionary (J. Anderson).

ROMANCE LANGUAGES AND LITERATURE

Benjamin P. Bourland

The year 1914 has not seen any departure from the usual courses in the pursuit of Romance studies in America, unless Professor Schevill's *Ovid and the Renascence in Spain* be considered an excursus into a field of a new kind. An examination of the year's publications suggests that activity in work about the Old-French epic is less than heretofore; that later French literature is proving increasingly tempting to younger scholars; that the study of classical Spanish is abundantly holding its own; that the renewed activity in Italian matters noted in the last issue (p. 798) can hardly be held to continue; that the preponderance of the literary over the grammatical interest subsists in about the usual ratio; and that the pedagogical aspects of the field are being more keenly considered, as is shown by a decrease in the output of hastily made text-books.

Necrology.—Frédéric Mistral died on March 25 at Maillane, the village in Provence where he was born on Sept. 8, 1830, and where he spent nearly all of his life. Mistral was the accepted leader of the group of men of letters, the Félibres, whose purpose it is to rehabilitate Provençal as a literary language, and the greatest figure in Provençal letters of his time and of many centuries. He won international recognition, and received many honors in France and elsewhere (Nobel Prize, 1904). He was best known as a poet (*Mireillo*, 1859; *Calendan*, 1867; *Nerto*, 1884, and many other volumes), but he also made a notable contribution to scholarship in his *Trésor dou Félibrige*, a massive lexicon of modern Provençal (1878). Hermann Suchier, until 1913 professor in the University of Halle, died July 4, 1914, at the age of 66. Suchier was one of the pillars of the older German school of Romance philology. His work was in French and Provençal, and was concerned in large measure with Norman. His influence as a teacher was very great and his works numerous and influential. Alcée Fortier, professor of Romance languages in Tulane University, died on Feb. 14 at the age of 57; besides being the author and editor of numerous books in French literature and history, he was deeply concerned with the earlier history of Louisiana, and for many years was president of the State Historical Society.

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ENGLISH LANGUAGE AND LITERATURE

C. G. CHILD

In the brief space available for this review it is possible only to indicate the general trend of American scholarship, and reference to many texts, reviews and articles upon points of detail, though technically of importance, must be omitted.

Philology.—Except for minor notes and textual criticism (Emerson's emendations of *Patience* in *Modern Language Notes* here deserve special mention) but little work has been accomplished, though the record is, on the whole, better than in the past two or three years. The most important single contributions have been F. A. Wood's "Some Parallel Formations in English" (*Hesperia*), Miss Babcock's

article on inflexional *l* in its metric relations (*Publ. Mod. Lang. Assoc.*), and Curme's articles on "The Analytic Genitive in Germanic" (*Mod. Phil.*) and "The Origin and Force of the Split Infinitive" (*Mod. Lang. Notes*). Other contributions are F. N. Scott's "Order of Words in Certain Rhythmic Groups" (*Mod. Lang. Notes*), Kenyon's "'Ye' and 'You' in the King James Version" (*Publ. Mod. Lang. Assoc.*), Read's "A Vernerian Sound Change in English" (*Eng. Stud.*), and Tucker Brooke's survey of "Germanic Studies in England 1559-1689" (*ibid.*). The need of proceeding at once with an *American Dialect Dictionary*, at cost otherwise of irreparable loss, has again been urged by Mead at the meeting of the Modern Language Association. The *Report* of the Joint Committee on Grammatical Nomenclature has been the subject of much comment in educational journals.

Old English Period (449-1150).—There has been less productive work in this field than usual. Reference may be made to B. C. Williams's "Gnomic Poetry in Anglo-Saxon" (Columbia), Olsen's "Beowulf and the Feast of Bricriu" (*Mod. Phil.*), Cook's *Some Accounts of the Bewcastle Cross* (Yale Univ. Press), and Miss Dudley's article on "The Grave" (*Mod. Phil.*), which links this period with the next.

Middle English Period (1150-1500).—The publication of McKnight's *Middle English Humorous Tales in Verse* (Heath) and Miss Shackford's useful volume of translations, *Legends and Satires from Medieval Literature* (Ginn), is welcome. Gerould's valuable article on the legend of St. Christina (*Mod. Lang. Notes*), Miss Spalding's *Middle English Charters of Christ* (Bryn Mawr *Monographs*), Miss Hammond's article on Lydgate (*Anglia*), and Sommer's *Structure of Le Livre d'Artus* (Hachette) should be especially noted; and, in the field of the drama, Karl Young on the Easter play (*Publ. Mod. Lang. Assoc.*), Bonnell on the *Prophet's Play* (*Publ. Mod. Lang. Assoc.*), Mackenzie on Henry Medwall's *Nature* (*ibid.*), and the latter's volume on *The English Moralities* (Ginn). America has not failed to distinguish herself, as for years past, in the study of Chaucer. There are important contributions by Lowes (*Mod. Phil.*), Tatlock (*Publ. Mod. Lang. Assoc.* and *Mod. Lang. Notes*), Carleton Brown (*Eng. Stud.*, Sept., 1913), Sypherd (*Publ. Mod. Lang. Assoc.*), Fansler (Columbia), and Jefferson (*Jour. Eng. and Germ. Phil.*), and Kuhl (*Publ. Mod. Lang. Assoc.*). The most notable contribution—one of the highest importance—is the paper (*ibid.*) by Frederick Tupper establishing the fact that Chaucer used the seven deadly sins as a leading motif in the *Canterbury Tales*.

Modern English Period (1500 to Date).—SeBoyer has written upon Skelton (*Mod. Lang. Notes*), and Tieje on "The Critical Heritage of Fiction in 1579" (*Eng. Stud.*). Special interest in the study of Spenser, manifested during several years, continues; here may be noted the articles of Padelford (*Jour. Eng. and Germ. Phil.*), Fletcher (*ibid.*), Long (*Mod. Lang. Notes, Anglia, and Eng. Stud.*), Lowes (*Publ. Mod. Lang. Assoc.*), and Hall (*ibid.*). There are, as usual, many papers and monographs upon the drama of the 16th and 17th centuries. Dutton writes upon "Dramatic Fashions Illustrated in Six Old Plays" (*Jour. Eng. and Germ. Phil.*) and Chislett upon *Ralph Roister Doister* (*Mod. Lang. Notes*). Wallace, who has distinguished himself by recent brilliant discoveries in English archives, treats *The First London Theater* (*Univ. of Nebraska Studies*) and proposes some startling theories in "The Evolution of the English Drama" (*Shakespeare Jahrbuch*). Reynolds (*Mod. Lang. Notes*), Graves (*Jour. Eng. and Germ. Phil.*), and Lawrence in the second series of his admirable studies of *The Elizabethan Playhouse* (Macmillan) treat the structure and conventions of the Elizabethan stage. Elizabethan tragedy is discussed by Alden (*Jour. Eng. and Germ. Phil.*) and by Fansler in *The Evolution of Technic in Elizabethan Tragedy* (Row, Peterson, and Co.). Of volumes upon Shakespeare may be mentioned Neilson and Thorndike's *The Facts About Shakespeare* (*Tudor Shakespeare*) and Stewart's *Some Textual Difficulties in Shakespeare* (Yale Univ. Press). Articles

upon Shakespeare include studies by Adams (*Mod. Lang. Notes*), Kelsey (*Jour. Eng. and Germ. Phil.*), Mason (*Mod. Phil.*), Schreiber (*Publ. Mod. Lang. Assoc.*), and Tolman (*ibid.*). Penniman, in his edition of Jonson's *Poetaster* and Dekker's *Satiromastix* ("Belles Lettres Series") summarizes, and advances upon, his own previous work and that of others upon the war of the theaters. Adams discusses the authorship of *A Warning to Fair Women* (*Publ. Mod. Lang. Assoc.*), and contributes notes upon Henry Glapthorne's *Wit in a Constable* (*Jour. Eng. Germ. Phil.*). Nettleton treats of the *English Drama of the Restoration and Eighteenth Century* (Macmillan). Of especial note are Gayley's detailed study of *Beaumont the Dramatist* (Century Co.) and Schelling's survey of *English Drama* (Dent) from its beginnings to Sheridan. Milton is the subject of a volume by E. N. S. Thompson, *Essays on Milton* (Yale Univ. Press), and of articles by H. W. Peck (*Publ. Mod. Lang. Assoc.*) and Gilbert (*Mod. Lang. Notes*). Strauss has edited a volume of Farquhar in the "Belles Lettres Series." Articles of a scientific character dealing with the period from the close of the 17th century to the present are, as usual, few in proportion to the extent of time and its importance. Here may be cited Snyder on "Stuart and Jacobite Lyrics" (*Jour. Eng. and Germ. Phil.*), Bernbaum on Mrs. Behn's biography (*Publ. Mod. Lang. Assoc.*), Dutton on Thomas Rymer (*ibid.*), Elwood Smith on unidentified letters of Pope (*ibid.*), Hughes on *Clarissa Harlowe* (*Jour. Eng. and Germ. Phil.*), Snyder on Thomas Gray (*Mod. Phil.*), Stork on the influence of the ballad on Wordsworth and Coleridge (*Publ. Mod. Lang. Assoc.*), Routh on the influence of Coleridge, Keats, and Shelley on Poe (*Mod. Lang. Notes*), Olivero on Hood and Keats (*ibid.*), Chew on Byron (*ibid.*), Eaton on De Quincey (*Jour. Eng. and Germ. Phil.*), Schultz on Scott's use of Chaucer (*Mod. Lang. Notes*), and Jaeck on John Oxenford (*Jour. Eng. and Germ. Phil.*).

The ballad is reserved for a word of special mention, not merely because American scholarship must always take a special interest in this field, owing to the monumental work of Child on *English and Scottish Ballads*, and Gummere's work upon the origins of poetry, but for a special reason noted below. In addition to the essay by Stork, above, may be listed Moore's article on "Omission of Central Action in English Ballads" (*Mod. Phil.*), and Forsythe's on "Modern Imitations of the Popular Ballad" (*Jour. Eng. and Germ. Phil.*). It is desirable to call special attention to the movement to gather oral versions of old ballads and native ballads still current in America (in which the Society of American Folk Lore has already done service) under the leadership of Belden and Alphonso C. Smith (see the *South Atlantic Quarterly* and the *Nation*). In this connection may be noted the continuation of the work of Lomax in gathering American folk songs (see abstract of his paper read at the meeting of the Modern Language Association).

ANCIENT LITERATURE AND PHILOLOGY

ANCIENT LITERATURE

(Additions from Papyri)

Clifford Herschel Moore

There are fewer literary papyri to notice this year than in previous years, although the publication of documents still goes on apace. The Società Italiana per la ricerca dei Papiri greci e latini in Egitto brought out its second volume too late in 1913 for the last issue of the Year Book. Of its 44 numbers 18 are from works previously known, four being texts of the Old and New Testaments and nine Homeric. A fragment of the Gospel according to Luke (No. 124) follows the version represented by a number of the manuscripts of the Itala, omitting xxii, 62 (καὶ ἐξελθὼν ἔξω ἔκλαυσεν πικρῶς); it is therefore important as the first Greek manuscript known which supports the Latin manuscripts at this place. The other sacred fragments offer nothing remarkable.

Of the other texts already known

No. 117 is noteworthy, for it is a fourth-century fragment of the *Gynecology* of Soranus, a medical writer of the time of Trajan and Hadrian. The verso offers some variants from the text given in the unique codex Parisinus Græcus 2153 (*c*); the recto contains an incomplete passage which seems to belong to the text lost in a lacuna of *c* (=p. 300.19 Rose) and may therefore with future discoveries become important.

Among the fragments of new texts appears a part of a *florilegium sententiarum* (No. 120) which shows little new in substance, although the collection does not seem to be closely related to any of the known *florilegia*. No. 123 is a fragment of Sappho, apparently identical in content with a small fragment discovered by Hunt among the Oxyrhynchus papyri. No. 128 is a part of a rhetorical exercise (*μελέτη*) in which Lacedæmonian steersmen under Lysander argue their right to rewards for their victory over the Athenians. The battle in question may well have been Ægospotami, but the papyrus gives no certain indication. Nos. 130 and 131 may be related. Both are in hexameters. The former contains some 48 broken verses of a Hesiodic *Eoeae*, the lines telling of the race between Hippomanes and Atalanta; the latter is a portion of some Theban story. A medical fragment (No. 132), some half-verses of the *Hecale* of Callimachus (No. 133), a prose mythological fragment (No. 135), fragments of an unknown comedy (No. 143), and a part of an unknown life of Demosthenes (No. 144) may become important through later discoveries. Thirteen fragments grouped under No. 147 contain bits of the Pæans of Pindar; six of these certainly belong to the sixth and seventh Pæans published by Grenfell and Hunt (Oxyrh. Pap., v); the others cannot be placed with certainty.

More important than are these, however, are 87 verses from a comedy by Menander (?), No. 126, preserved on three pieces of parchment; the writing dates from the fifth century. The goddess Tyche speaks the prologue, which was apparently of the expository type. The dialogue preserved is insufficient to enable us to reconstruct the plot; but the verses tell us of a marriage, of a miser (*φιλάργυρος*) who may have given his name to the play, and of the sudden death of Smicrines' brother; a rascally slave Davus announces a great misfortune and quotes Carcinus and Euripides to the mystification and annoyance of Smicrines; and then the verses break off. Still the whole is a welcome addition to our growing *corpus Menandreum*.

Finally we should notice an interesting paraphrase in Latin hexameters of Virgil *Æn.* 1, 477ff.

In ΔΙΚΑΙΟΜΑΤΑ, edited by the Greek Society of Halle (Weidmann, Berlin, 1913), we find five literary fragments of which the most important are some half-hexameters from a Hellenistic epic, some half-lines of Sappho, and three substantial fragments of Æschines against Timarchus.

Lastly we should call attention to six lectures by E. M. Walker of Queen's College, Oxford, published under the title *The Hellenica Oxyrhyncia* (Oxford, 1913), in which the author inclines to favor the attribution to Ephorus.

GREEK LITERATURE

WILLIAM ARTHUR HEIDEL

The *American Journal of Philology*, the *American Journal of Archæology*, *Classical Philology*, and the other periodicals mentioned in the YEAR BOOK for 1910 (p. 162), continue the publication of excellent articles on a wide variety of subjects. A new illustrated magazine, *Art and Archæology*, made its first appearance in July, 1914. Although general and popular in character, it may be expected to present occasionally matters bearing indirectly, if not directly, on Greek literature. Among articles in periodicals for 1914 may be noted the following: G. M. Bolling, "The Archetype of Our Iliad and the Papyri," B. O. Foster, "The Duration of the Trojan War," J. A. Scott, "Two Homeric Personages," A. C. Johnson, "The Date of Menander's Andria," in the *American Journal of Philology;* G. M. Calhoun, "Documentary Frauds in Litigation at Athens," Paul Shorey, "Plato's Laws and the Unity of Plato's

Thought, I," J. A. Scott, "Athenian Interpolations in Homer, Part II," in *Classical Philology;* E. B. Clapp, "On Certain Fragments of Pindar," T. D. Goodell, "χρὴ and δεῖ," in the *Classical Quarterly;* F. A. Hall, "A Comparison of the Iphigenias of Euripides, Goethe, and Racine," in the *Classical Journal;* C. R. Post, "The Dramatic Art of Menander," in *Harvard Studies in Classical Philology;* A. R. Anderson, "Repudiative Questions in Greek Drama, and in Plautus and Terence," F. G. Allinson, "Some Passages in Menander," R. B. English, "Heraclitus and the Soul," in *Transactions of the American Philological Association.*

The year has brought forth several books which appeal to the student of Greek literature as well as the general reader. *Ancient Greece: a Sketch of Its Art, Literature, and Philosophy Viewed in Connection with Its External History from Earliest Times to the Age of Alexander the Great,* by H. B. Cotterill (Stokes), *Athens and Its Monuments,* by C. H. Weller (Macmillan), Furtwängler and Ulrich's *Greek and Roman Sculpture,* translated by Horace Taylor (Dutton), *Euripides and His Age,* by Gilbert Murray (Holt), are among the best of the number. In the "Loeb Classical Library" have appeared *Quintus Smyrnæus,* by A. S. Way, and *Plato,* vol. I, by H. N. Fowler, and Professor Wright's excellent *Works of the Emperor Julian,* has reached the second volume. Professor C. F. Smith, who had before produced good editions of Thucydides, Books III and VII, has given us a scholarly edition of Thucydides, Book VI (Ginn).

The number of American doctoral dissertations of the year is not large. The best, and also the one which possesses most interest for the student of literature, is a Yale dissertation, "The Influence of Isocrates on Cicero, Dionysius and Aristides," by H. M. Hubbell. "The Kings of Lydia, and a Rearrangement of Some Fragments from Nicolaus of Damascus," a Princeton dissertation, by Leigh Alexander, is of value to the historian. Another Princeton dissertation, "The House-Door on the Ancient Stage," by W. W. Mooney, is a useful study of the drama.

LATIN LITERATURE

CHARLES KNAPP

Though American work in Latin literature and allied fields consisted in 1914, as usual, mainly of articles in periodicals,[1] several books deserve attention. One, by E. G. Sihler, *Cicero of Arpinum,* is a political and literary biography, and a guide to the study of Cicero's writings. A translation of Vitruvius' important work on architecture, written by the late M. H. Morgan, of Harvard University, was published, with illustrations and original designs prepared under the direction of H. L. Warren.

A selected list of articles and dissertations follows, arranged according to the Latin authors with which they deal primarily: "The Helvetian Campaign. Was Cæsar Wise or Willful?" by A. T. Otis (*CJ.*, ix, 241-250, 292-300); "Catullus, LXVIII, A and B," by Tenney Frank (*AJP.*, xxxv, 67-78); "The Impeachments of Verres and Hastings: Cicero and Burke," by H. V. Canter (*CJ.*, ix, 199-211); *The Influence of Isocrates on Cicero, Dionysius, and Aristides,* by H. M. Hubbell, a Yale University dissertation; "The Prosecution of Archias," by R. W. Husband (*CJ.*, ix, 165-171); "Cicero's Judgment of Lucretius," by H. W. Litchfield (*HS.*, xxiv, 147-159); "The Conclusion of Cicero's *De Natura Deorum,*" by A. S. Pease (*TAPA.*, xliv, 25-37); "Lucilius: The *Ars Poetica* of Horace, and Persius," by G. C. Fiske (*HS.*, xxiv, 1-36); a review of H. Magnus' monumental critical text-edition of the *Metamorphoses* of Ovid (*AJP.*, xxxv, 207-211) and a review of R. Schevill's *Ovid and the Renaissance in Spain* (*Univ. of California Publ. in Mod. Phil.*, iv, 1-268; reviewed in *AJP.*, xxxv, 330-335), both by K. F. Smith, and distinct contributions to the study of Ovid; "The Greek Motives of the First Scene of Plautus' *Menæchmi,*" by G. D. Kellogg (*PAPA.*, xliv, xxxii-xxxiv); "The Presentation of Classi-

[1] Periodicals are cited thus: *AJP., American Journal of Philology; CJ., Classical Journal; CP., Classical Philology; CW., Classical Weekly; HS., Harvard Studies; TAPA.* (*PAPA.*), *Transactions* (*Proceedings*) *of the American Philological Association.*

cal Plays," by D. D. Hains (*CJ.*, ix, 189-198, 251-260, 344-353); "Notes on Plautus and Terence," by C. Knapp (*AJP.*, xxxv, 12-31); "The Plot of the *Querolus* and the Folk-Tales of Disguised Treasure," by D. P. Lockwood (*TAPA.*, xliv, 215-232); "The House-Door on the Ancient Stage," by W. W. Mooney, a Princeton University dissertation; "Roman Comedy," by W. A. Oldfather (*CW.*, vii, 217-222); "The Site of Roman Dramatic Performances," by Catharine Saunders (*TAPA*, xliv, 87-97); "More About the Dialogus of Tacitus," by W. Peterson (*AJP.*, xxxv, 74-78); "Tertullian and the Pagan Cults," by G. J. Laing (*PAPA.*, xliv, xxxv-xxxvii); reviews of Smith's edition of Tibullus, a work noticed a year ago, by A. L. Wheeler (*AJP.*, xxxv, 461-470) and B. L. Ullman (*CW.*, vii., 212-214); "Varroniana," by E. W. Fay (*AJP.*, xxxv, 149-162, 245-267).

Less definitely connected with particular authors are the following: a review of Leo, *Geschichte der Römischen Literatur*, I, by J. W. D. Ingersoll (*CW.*, vii, 188-190); "The Latin Epyllion," a study of the shorter poems in Latin and the reëstablishment and development of romanticism, by C. N. Jackson (*HS.*, xxiv, 37-50); a review of Duff, *A Literary History of Rome*, by E. S. McCartney (*CW.*, vii, 164-168); "The Abuse of Fire," a study of fire "miracles" in ancient times, by W. B. McDaniel (*ibid.*, 121-125, 129-132); "Some Greek, Roman and English Tityretus," a study of the persistent tradition, from classical times, of the semi-respectable street roisterer, with special reference to the etymology of "Tityretu" as a name for such roisterers, by W. B. McDaniel (*AJP.*, xxxv, 52-66: the author derives the name from *Tityrus*, in the sense of a Satyr); *The Birds of the Latin Poets*, by E. W. Martin, a Leland Stanford University publication; "The Story of the Strix: Ancient," a study of the ancient tales of a woman-bat, by S. G. Oliphant (*TAPA.*, xliv, 133-149); "A Study of the Social Position of the Devotees of the Oriental Cults in the Western World, Based on the Inscriptions," by D. N. Robinson (*TAPA.*, xliv, 151-161); "Dramatic 'Satura'," by B. L. Ullman (*CP.*, ix, 1-23).

A concise and simple statement of the matters at issue between various students of ancient metrical systems, Greek and Roman, is to be found in "The Old and New in Metrics," by R. W. Husband (*CJ.*, ix, 212-221); this paper was inspired by the publication, in 1912, of J. W. White's *The Verse of Greek Comedy*, which was reviewed by P. Shorey (*CP.*, viii, 99-104, 217-220; see also *ibid.*, 214-217, for reply by Professor White).

Reference was made in the last issue (p. 805) to the part played by American scholars in the preparation of the "Loeb Classical Library." During 1914 the volumes added include translations of Horace, *Odes*, by C. E. Bennett, of Cicero, *De Officiis*, by W. Miller, and of Suetonius, complete, by J. C. Rolfe.

That the interests of scholars in Latin literature take a wide range is evidenced by W. P. Mustard's edition of *The Piscatory Eclogues* of Jacopo Sannazaro, and by *De Rinucio Aretino Græcarum Litterarum Interprete*, by D. P. Lockwood (*HS.*, xxiv, 51-109). (For works on Latin syntax see *Indo-European Philology, infra.*)

SEMITIC LANGUAGES AND LITERATURE

Morris Jastrow, Jr.

The Hittites.—The progress made in unraveling the mystery of the Hittites merits a place here because the work within this field is largely carried on by Semitists. R. Campbell Thompson has hit upon a new method for the decipherment of the puzzling script in a monograph, "A New Decipherment of Hittite Hieroglyphics," published by the Society of Antiquaries of London. Basing his attempt chiefly upon a long inscription found at Carchemish in 1911, Mr. Thompson by a most ingenious and patient process of reasoning and of combination succeeded in reading correctly a number of proper names occurring in this and in other Hittite inscriptions. With this as a basis he has been able to pass on to other words and, while many of his results are still problematical, it looks very much as though the key discovered by him were correct.

A volume of Hittite texts, written in cuneiform characters and found in the course of excavation at Boghaz-koi conducted by the late Prof. Hugo Winckler, is in course of preparation. Twenty-six little vocabularies comprised in this volume form the subject of a preliminary study by Prof. Friedrich Delitzsch, who shows that these vocabularies contain hundreds of Hittite words written in cuneiform characters, together with their equivalents in Babylonian and Akadian. As a consequence we now know the actual pronunciation and meaning of many Hittite words, as well as case endings and verbal forms.

For those interested in a general survey of the Hittite civilization, we may refer to Eduard Meyer's *Reich und Kultur der Chetiter* (Boston, 1914), an excellent monograph with full illustrations.

Assyriology.—The two most important works in the domain of Assyriology are the *Grundzüge der Sumerischen Grammatik* and the *Sumerisches Glossar* by Prof. Friedrich Delitzsch. Through these two works the study of Sumerian is finally placed on a sound basis, though there are still many problems in the language awaiting explanation. With the help of these two handbooks of Sumerian every Assyriologist is now in a position to pass on to the study of the older non-Semitic language of Babylonia.

Prof. A. T. Clay, of Yale University, has added, as editor of the *Babylonian Records in the Library of J. Pierpont Morgan*, two more volumes to the series, one prepared by the editor and furnishing 56 legal documents of Babylonia dating from the latest period (312 to 65 B. C.). Especial interest attaches to these texts because of the large number of Greek names occurring in them and Professor Clay has been particularly happy in the explanation of these names. The other volume (number 3 of the series) is by Dr. Clarence E. Keiser, of Yale University, who publishes for the first time a large number of tags or labels attached to merchandise or to animals and containing in a summary manner indications of the objects or animals forwarded through a messenger or on a boat. The texts published throw a further interesting light on the commercial methods in vogue in ancient Babylonia.

Two other publications in the domain of Assyriology are Dr. M. Schorr's *Alt-babylonische Rechtsurkunden* and Professors Kohler and Ungnad's *Assyrische Rechtsurkunden*, the former furnishing translations and valuable commentaries on some 300 of the older commercial and legal documents of Babylonia, the latter doing the same for almost 700 documents of the same class belonging to the Assyrian period.

Islam.—Prof. D. S. Margoliouth has brought to a close his great edition of Yaqut's *Dictionary of Learned Men*, published by the trustees of the E. J. W. Gibb Memorial of England. This biographical dictionary, one of the most important in the whole range of Arabic literature, contains notices of several thousand individuals, writers, statesmen, theologians, etc.; it is thus a mine of most valuable information for the student of Mohammedan and Arabic history. The same Professor Margoliouth has just published a series of "Lectures on the Early Development of Mohammedanism," which is an endeavor to trace the growth of Islamic ideas from the inside rather than from the outside point of view.

Old Testament.—Within the Old Testament field the usual large number of publications by German, French, English and American scholars have been forthcoming, among the most important being Prof. R. C. H. Charles' translation and commentary on *Apocrypha and Pseudepigrapha of the Old Testament* (2 vol., Oxford and Clarendon Press), based on the most minute and accurate studies of the original texts. Mention may be also made of the *Festschrift*, published in celebration of the seventieth birthday of Prof. Julius Wellhausen of Göttingen, the leading Biblical student of the day, whose early researches formed a most important epoch in the critical study of the Old Testament. Professor Wellhausen is equally eminent as an Arabic scholar and in recent years has brought out important investigations on the New Testament. It was therefore particularly appropriate that his pupils and friends in

all parts of the world should have united in preparing a *Festschrift* which contains articles by distinguished scholars in the three divisions of Professor Wellhausen's remarkable activity.

INDO-EUROPEAN PHILOLOGY

(*Exclusive of the Germanic Languages*)

ROLAND G. KENT

General.—L. Bloomfield's *Introduction to the Study of Language* (Holt) is an excellent manual, presenting the results of linguistic and phonetic study up to the present day. It covers part of the field of W. D. Whitney's *Language and the Study of Language*, published in 1867, but it supplements and corrects that work rather than entirely supersedes it, since the older book is larger and fuller and of such saneness of treatment that even the lapse of nearly 50 years has failed to destroy its value, though in details it must now be corrected.

The *Report of the Joint Committee on Grammatical Nomenclature*, appointed by the National Educational Association, the Modern Language Association of America and the American Philological Association, was issued at Chicago in the closing days of 1913, and sets forth a uniform terminology for grammar, applicable to all the languages studied in the schools of this country, in an attempt to reduce the waste of effort entailed by learning different sets of technical terms for different languages; it has met with much commendation, but also with considerable hostile criticism.

E. Prokosch, under the title *Die Stabilität des germanischen Konsonantensystems* (*IF.*,[1] xxxiii., 377-94), discusses the development of the consonants of the original speech in the separate languages.

[1] Periodicals are cited under the following abbreviations: *AJP., American Journal of Philology; CJ., Classical Journal; CP., Classical Philology; CQ., Classical Quarterly; CW., Classical Weekly; IF., Indogermanische Forschungen; JAOS., Journal of the American Oriental Society; TAPA., Transactions of the American Philological Association.*

Indo-Iranian.—Three volumes have recently appeared in the "Harvard Oriental Series," edited by C. R. Lanman: XII and XIII, *The Panchatantra-text of Purnabhadra*, by J. Hertel (critical commentaries, etc.; the text in vol. xi, previously published); and XV, *Bharavi's Poem, Kiratarjuniya, or Arjuna's Combat with the Kirata, translated from the original Sanskrit into German and explained*, by C. Cappeller.

M. Bloomfield presents (*Proc. Amer. Philos. Soc.*, lii, 616-50) a very interesting and valuable account of "The Character and Adventures of Muladeva," the arch-rogue and trickster of Hindu literature, gathered from many widely scattered sources. Other articles in the Indian field are C. R. Lanman, "Buddhaghosa's Treatise on Buddhism, Entitled the 'Way of Salvation': Analysis of Part I, 'On Morality'" (*Proc. Amer. Acad. Arts and Sci.*, xlix, 149-69), and "Hindu Law and Custom as to Gifts" (*Anniversary Papers by Colleagues and Pupils of G. L. Kittredge*, 1-14); G. M. Bolling, "The Çantikalpa of the *Atharvaveda*" (*JAOS.*, xxxiii, 265-78); E. A. Welden, "The Samkhya Teachings in the *Maitri Upanisad*" (*AJP.*, xxxv, 32-51); E. W. Hopkins, "Gleanings from the *Harivansa*" (*Festschrift für Ernst Windisch*, 68-77); F. Edgerton, "Vedic *sabhā*." (*Kuhns Zeitschrift*, xlvi, 173-8); A. J. Edmunds, "Identification of Asoka's First Buddhist Selection" (*Jour. Royal As. Soc.*, 1913, 385-7); D. Osborne, "A Græco-Indian Engraved Gem" (*Am. Jour. of Archæology*, xviii, 32-4); R. G. Kent, "The Chronology of Certain Indo-Iranian Sound Changes" (*JAOS.*, xxxiii, 259-62).

In the Iranian field the most notable product of the year is *A Catalogue of the Persian Manuscripts presented to the Metropolitan Museum of Art, New York, by Alexander Smith Cochran*, prepared and edited by A. V. W. Jackson and A. Yohannan, and issued as volume I of the "Columbia University Indo-Iranian Series," of which Professor Jackson is general editor (vols. II-VIII appeared in previous years). Other articles are: Jackson, "Art in Persian Manuscripts" (*Nation*, xcvi, 627-8), "The Ancient Persian Conception of Salva-

tion According to the *Avesta*, or Bible of Zoroaster" (*Am. Jour. Theol.*, xvii, 195-206), "On a Statue of Zoroaster in New York City" (*Sanj Vartman*, Bombay, Sept., 1913), "Notes on Allusions to Ancient India in Pahlavi Literature" (*Festschrift für Ernst Windisch*, 209-212); L. H. Gray, "Iranian Miscellanies" (*JAOS.*, xxxiii, 281-94); H. C. Tolman, "Does *yaunā takabarā* (*Dar. NRa*) signify 'Shield (i. e. *Petasos*)-wearing Ionians'?" (*Proc. Am. Philol. Assoc.*, xliv, p. liii-lv).

Etymology and Phonology, General and Classical.—Very considerable contributions in etymology, running through the whole field of Indo-European languages, are made during the year by E. W. Fay (*CQ.*, viii, 50-60; *IF.*, xxxii, 330-2 and xxxiii, 351-67; *TAPA.*, xliv, 107-26; *Jour. Eng. and Germ. Phil.*, xii, 540-1; *AJP.*, xxxv, 149-62 and 245-67, with the linguistic material indexed 149-50); and by F. A. Wood (*CP.*, ix, 145-159; *Mod. Lang. Notes*, xxix, 69-72).

G. Hempl (*TAPA.*, xliv, 185-214) interprets "The Tell el Amarna Texts" as "old Doric" Greek, but his view is highly improbable. F. C. Babbitt (*Berliner Phil. Wochenschr.*, xxxiv, 1055) interprets Athena's epithet Τριτογένεια as 'daughter of the third-born,' since her father Zeus was third in the genealogical line Uranus, Cronus, Zeus. C. D. Buck (*CP.*, ix, 370-3) answers negatively the query "Is the Suffix of *βασίλισσα*, etc., of Macedonian Origin?" W. H. Schoff, on "The Name of the Erythræan Sea" (*JAOS.*, xxxiii, 349-362), disputes the view of Miss Hoyt (*JAOS.*, xxxii, 115-9).

E. H. Sturtevant adds some important details on "The Genitive and Dative Singular of the Latin Pronominal Declension" (*TAPA.*, xliv, 99-105). C. D. Buck champions the validity of Greek "ΗΣΣΕ as Evidence for *ēsse*" (*CR.*, xxviii, 157-8). E. W. Fay (*AJP.*, xxxiv, 497-9) again assails Kent's views on the value of the fragments of Lucilius for Latin orthography (*A. Y. B.*, 1913, p. 807). R. G. Kent has etymological articles on *pomerium* (*TAPA.*, xliv, 19-24) and *puer* (*IF.*, xxxiii, 169-71). Miss E. Fahnestock and Miss M. B. Peaks present data for "A Vulgar Latin Origin for Spanish *padres* meaning 'Father and Mother'" (*TAPA.*, xliv, 77-86). F. H. Lee has an interesting paper on the "Etymological Tendencies of the Romans" (*CW.*, vii, 90-6). E. W. Nichols contributes valuable studies in word-meanings in his "Semantic Variability and Semantic equivalents of *-oso-* and *-lento-*" (Yale doctoral dissertation).

Latin Syntax.—A truly noteworthy product of American scholarship is C. E. Bennett's *Syntax of Early Latin*, Vol. II, *The Noun* (Allyn & Bacon, Boston), following Vol. I, *The Verb*, after an interval of four years. An exhaustive review, in part hostile, is given by C. Knapp in *AJP.*, xxxv, 268-93. Professor Bennett's two volumes supersede all previous treatments of the subject, and will remain the standard work in this field for many years.

The following special investigations may be noted: J. J. Schlicher, "The Historical Infinitive" (*CP.*, ix, 279-94 and 374-94); A. R. Anderson, "Studies in the Exclamatory Infinitive" (*C.P.*, ix, 60-76), "The Unity of the Enclitic *Ne*" (*CP.*, ix, 174-88) and "Repudiative Questions in Greek and Latin" (*TAPA.*, xliv, 43-64); R. B. Steele, "The Participle in Livy" (*AJP.*, xxxv, 168-78), and "The Passive Periphrastic in Latin" (*TAPA.*, xliv, 5-17); E. D. Cressman, "The Genitive and Ablative of Description" (*CJ.*, ix, 122-7); R. G. Kent, "Some Tense Sequences in Cæsar's *De Bello Gallico*" (*CW.*, vii, 77-8 and 88).

XXXII. EDUCATION AND EDUCATIONAL INSTITUTIONS

ANNA TOLMAN SMITH

ACTIVITIES OF THE FEDERAL GOVERNMENT

Appropriations.—The activities of the Federal Government in respect to education are exercised in two directions, control and promotion. As a controlling power the province of the Government is limited to the national Military and Naval Academies, the War College at Washington, and the Army and Navy service schools, and the direction of the school systems of newly acquired possessions and of schools for Indians and native Alaskans.

From the earliest period the Government has fostered public education by liberal grants of "school lands" to the states, and in recent years has adopted the policy of appropriations for educational purposes, reserving a measure of supervision over the funds to insure economy and fidelity in their use. The appropriations directly for education for the year ending June 30, 1914, exceeded $12,000,000. The principal items were as follows: for Indian schools and school buildings, $4,215,596, administered by the Commissioner of Indian Affairs; the continuing appropriation for the colleges of agriculture and the mechanic arts, $2,500,000; for experiment stations in the states, $1,613,500; for experiment stations in outlying territories, $13,200; for public schools in the District of Columbia, $2,447,575, half the estimated expense for the schools, the other half coming from the revenues of the District. Congress also appropriated $165,000 for national training schools (reformatory) for boys and girls in the District of Columbia; for playgrounds, $23,825; and for the public library and its branches, $63,000. The largest appropriations for individual institutions were: the Military Academy at West Point, $1,245,000; the Naval Academy at Annapolis, $686,000, so far as separately appropriated; Howard University, $92,000; Columbia Institution for the Deaf, $11,550.

The Bureau of Education.—Through the Bureau of Education, the Federal Government exercises a unifying and stimulating influence over all the agencies of public education throughout the country. The appropriation for the Bureau for the fiscal year ending June 30, 1914, amounted to $89,050 for current expenses; for the education of the natives of Alaska, $200,000; and for the reindeer service, $5,000. For the fiscal year ending June 30, 1915, an increase of $30,000 was allowed on the current expenditures; of this amount $15,000 was added to the lump sum previously granted for rural education and industrial education and $5,700 was for promoting school and home gardening.

Congressional Legislation.—The subjects of chief national interest in respect to education are reflected in bills introduced in the sixty-third Congress. Chief among these is the Smith-Lever Agricultural Extension bill, approved on May 8. It provides an appropriation for coöperative agricultural extension work to be carried on in such manner as may be agreed upon by the Secretary of Agriculture and the state agricultural college or colleges receiving the benefits of the Act. The appropriation for the first year of operations under the Act is $480,000, of which $10,000 is to be paid to each state complying with the prescribed conditions. The appropriation increases annually by a fixed amount, reaching eventually the sum

of $4,100,000 in addition to the original $480,000. (See also XVII, *Agriculture.*)

The movement for Federal aid to vocational education (agriculture and industrial arts) culminated in the enactment of a bill providing for the appointment of a commission to investigate the subject. The commission has submitted as a part of its report a bill providing that a sum of about $50,000,000 shall be distributed for purposes of vocational education among the individual states in the decade 1916-1925, the appropriations to be disbursed by a Federal board comprising the Postmaster-General and the Secretaries of the Interior, Agriculture, Commerce and Labor, with the Commissioner of Education as the executive officer. (See also XV, *Vocational Education and Guidance.*)

Schools Conducted by the Government.—At the head of the system of professional training for military officers and men is the Military Academy at West Point for the education of cadets. The service schools include post and garrison schools; the Army service schools at Fort Leavenworth, Kan.; special service schools at selected points; and the Army War College at Washington. The discipline of the system is extended to civilians by the recently established schools of instruction for college students and the drill in schools under army officers detailed for that purpose. (See also XII, *The Army.*)

In addition to the Naval Academy at Annapolis, the Navy Department conducts an educational system for enlisted men which extends from elementary subjects to higher academic and technical branches. The system was formally established by a general order of the Secretary of the Navy issued Dec. 16, 1913. During 1914 the Secretary increased his special council by the addition of a new post, that of aid for education, the incumbent having general charge of the system, which affects 60,000 men. (See also XII, *The Navy.*)

ELEMENTARY EDUCATION

The School Population.—The total population of the continental United States was estimated at 98,781,324 in 1914. Of this number, 21¼ millions, or more than one-fifth the total, were under instruction in schools and higher institutions during the school year 1913-14. The estimated cost of this work exceeds $706,000,000. Of the total pupils and students, 96 per cent. were in day schools, colleges, universities and professional schools. The remaining four per cent. were distributed in schools intended for persons who have passed the school age, i. e., city evening schools, business schools, etc., or in schools for special classes of children, the blind, deaf-mute, feeble-minded, the orphaned, and the government schools for Indians and native Alaskans. The aggregate of pupils and students increases at a rapid rate. Preliminary estimates for the current school year (1914-15) place the total at 22,000,000, with a proportionate increase in the teaching force and the estimated expenditure.

The Public Schools.—Enormous efforts are made to insure that every child shall benefit by the provision of ample free public-school facilities according to individual capacity. As regards the enrollment of pupils, these efforts are successful. During 1914 at least 18½ million pupils attended the common schools, which employed a force of 570,000 teachers and required an outlay of $540,000,000. Of this amount, 84 per cent. was for current expenditures. These are imposing totals, but they do not represent uniform conditions nor fairly efficient instruction throughout the country. Not only do sections and states differ widely in respect to school provision, but even different counties in the same state show glaring inequalities. Through the efforts of the national Bureau of Education, a uniform scheme of school statistics is in use throughout the country, and although full returns are not secured from every section, the expert statistician is able to fill up the gaps by very reliable estimates. The latest analysis of the statistics shows the distribution of school population, enrollment and average attendance among the geographic divisions of the country in 1912 as follows:

Geographical Division	School Population (5 to 18 years of age)	Enrollment in Public Schools	Average Attendance	Per cent. of School Population of Total Population	Public School Enrollment: Per cent. of		Average Number Days in School Term, 1912	Number Attending Daily for Each 100 Enrolled	Estimated Number of Pupils Enrolled in Private Schools 1911–12
					Total Population	School Population			
United States	25,167,445	18,182,937	13,302,303	26.35	19.03	72.25	158.0	73.2	1,647,104
No. Atlantic	6,325,611	4,333,060	3,463,033	23.47	16.08	68.50	180.9	79.9	718,982
No. Central	7,825,533	5,960,320	4,640,372	25.50	19.43	76.17	164.8	77.9	579,082
So. Atlantic	3,818,192	2,602,175	1,693,542	30.34	20.67	68.15	131.5	65.1	116,947
So. Central	5,552,348	3,952,913	2,500,860	31.03	22.09	71.19	129.5	63.3	149,069
Western	1,645,761	1,334,469	1,004,496	22.13	17.94	81.09	164.1	75.3	83,024

Geographical Division	Teachers			Estimated Value of All Public Property Used for School Purposes	Total Revenue (Excluding Balances on Hand and Proceeds of Bond Sales), 1911–12	Total Payments, Excluding Payments of Bonds, 1911–12
	Men	Women	Total			
United States	114,559	432,730	547,289	$1,266,382,277	$469,110,642	$482,886,793
No. Atlantic	18,771	116,966	135,737	498,560,921	165,118,189	158,786,190
No. Central	39,870	168,272	208,142	462,753,245	170,407,366	182,078,430
So. Atlantic	16,139	49,035	65,174	71,607,726	31,669,119	31,596,994
So. Central	31,750	61,902	93,652	100,237,542	48,195,043	49,299,148
Western	8,029	36,555	44,584	133,222,843	53,720,925	61,126,031

Certain differences in prevailing conditions stand out very clearly in these tables. Thus, the school population bears a smaller ratio to the total population in the North-Atlantic and Western states than in the remaining divisions, and naturally the ratio of school enrollment to population is smaller in the divisions named. The same expenditure therefore would give each child larger opportunities than in other sections. In the North-Atlantic division the proportion of the school population enrolled in public schools is smaller than the average for the United States, but this division has the longest school year aud the highest average attendance, and every child enrolled attends school more days in the year than is the case in any other division. It is noticeable also that the North-Atlantic division exceeds the others in the proportion of the school population attending private schools.

The efficiency of the school provision of any section is not to be measured, however, by the enrollment or even by the average attendance. So far as statistics furnish such a measure, it is supplied by the following items:

Geographical Division	Average Length of School Year, in Months	Average Annual Salary of All Teachers	Total Expenditure Per Capita of		Per cent. of Illiterates in Population 10 to 14 Years of Age	
			Average Attendance	Population	1900	1910
United States	7.90	$491.62	$36.30	$5.05	7.1	4.1
No. Atlantic	9.05	651.24	45.85	5.89	.9	.4
No. Central	8.24	499.18	39.24	5.93	1.0	.4
So. Atlantic	6.58	308.34	18.66	2.51	17.8	10.0
So. Central	6.48	345.84	19.71	2.76	17.2	10.0
Western	8.21	668.46	60.85	8.22	2.8	1.7

The range of difference between states and sections in the length of the school year and in the average salary for teachers is very noticeable: the former item varies from 92 days to 194 days, but even the maximum

term is shorter than the school year in the principal countries of Europe. The average annual salary for teachers varies from $195 to $937. It is difficult, however, to estimate these differences fairly so long as city and country schools are both included in the same averages. The detailed statistics annually collected and published enable each state and city and smaller community to measure the status of its educational work by others of its kind.

The difference between the states in respect to compulsory school attendance is really startling. The compulsory period ranges from four to nine years, the yearly term from 60 days to the full school year of 190 days. Six states are still without compulsory laws. The year, however, affords several instances of advance over former legislation in this matter. This is noticeably the case in North Carolina and Tennessee, in both of which compulsion, formerly limited to a few counties, has been made state-wide. In seven states compulsion has recently been extended to the ages 14 to 16 with exemptions for adequate cause. Thus, under the Michigan act of 1913 the period of compulsion covers the ages seven to 16 for the entire term of school. Holders of eighth-grade diplomas are exempt, as are also "children over 14 years of age if needed for the support of their parents." The provision is not likely to be abused because of Michigan's strict child-labor law.

The permanent funds, which furnish 3.25 per cent. of the school revenue of the country, are derived from the sale of lands granted by Congress or by state legislatures for that purpose. The North-Central division has the largest amount from this source but the South-Central division exceeds in the proportion of the school revenue (nine per cent.) thus supplied. Texas is the most highly endowed state in this respect, the total value of its permanent fund exceeding $83,900,000, affording an income of $2,555,000. It is interesting to note that this endowment has not stifled local efforts in behalf of the schools, the local school tax in this state yielding more than in any other state of the division.

The Immigrant Problem.—The education and assimilation of the immigrant population place a heavy burden upon the commercial and industrial cities of the country, a burden increased in recent years by the changed character of the immigrants, who are coming more and more from countries having meager provision for education. The dangers arising from these conditions were set forth in a special report by the Massachusetts Commission on Immigration submitted to the legislature during the year. A single sentence sums up the conclusions: "The state must, at whatever cost, prevent the lowering of its moral, mental and physical standards, the inevitable result of overwork, underpay, unregulated housing and overcrowded tenements." As preventive measures the commissioners urge the establishment of day and evening schools for illiterates; a large appropriation for the free library service; and the maintenance of a bureau of employment for immigrants.

The census revelations of adult illiteracy have excited special efforts to overcome this phase of the evil. An important conference on the subject was held in New York in June last under the auspices of the Industrial League and a bill was introduced into Congress by John W. Abercrombie of Alabama authorizing the Commissioner of Education to investigate the subject with special reference to means for its correction.

Although the foreign-born population contributes a large proportion of the illiterates, namely, nearly 13 per cent., many states show an alarming degree of illiteracy among the native-born white population. In six states the proportion from this class exceeds 10 per cent. of the whole number of illiterates. Governor McCreary of Kentucky, which is one of these states, has issued a proclamation announcing the appointment of a state Illiteracy Commission and the beginning of a campaign to eliminate the evil from his state. A thousand volunteer teachers are already at work in the "moonlight school," teaching Kentucky's 208,000 adult illiterates how to read and write. This action was inspired by the work of Mrs. Cora Wilson Stewart, through whose efforts

as superintendent of schools illiteracy has been wiped out of Rowan County during the last three years.

Educational Surveys.—The report of the Vermont Educational Survey was a notable event of the year. The commission was appointed by the governor and secured for the work the cooperation of the Carnegie Foundation for the Advancement of Teaching. The recommendations based upon the findings of that body call for a reconstruction of the state system and policy in education. The criticisms of the state university and agricultural college and the recommendations that financial aid to higher institutions should cease until the state has perfected its full constitutional duty to public schools, and then only in return for some specific service, roused intense opposition. The discussion was the sensation of the year.

The report of the survey of three "type counties" in Alabama directed by William F. Feagin, state Superintendent of Education, is an important contribution to the current history of the country. Of the counties selected one has excess of white population, a second is in the "black belt," and the third in the valley and hill sections, so that the average and the extreme conditions of the educational problem of the Gulf states were covered by the survey. Each section of the report closes with constructive suggestions, pertinent, feasible, and in large measure applicable to every state in the Union.

As regards rural education the hope of permanent results from the general welfare movement is in the practical investigation of present conditions undertaken by state authorities as a preliminary to reform measures. A typical investigation of this kind was that ordered by the legislature of Ohio in 1912 and completed in 1913. The recommendations contained in the report of the commission formed the basis of the new school code adopted by the legislature in 1914.

Vocational Education.—Systems of vocational education have been established by law in six states, namely, Massachusetts, New York, Wisconsin, New Jersey, Pennsylvania, and Indiana. In the last three states, the laws were passed in 1913, becoming operative in 1914. They not only show extension of the movement but also the principles that are shaping the work in the United States. These include emphasis on manual training and industrial subjects in the grade schools, establishment of vocational schools or departments as a regular part of the public-school system, but under special boards, and state aid and state and local supervision for the system. In addition to new measures, the year has been marked by important modifications of earlier legislation on the subject, and by special acts relating to agricultural education (see XVII, *Agriculture*). With a view to local adaptations of the new order of training, vocational surveys have been undertaken in several states and many cities.

URBAN SCHOOL SYSTEMS

Statistics.—On the basis of the census classification the urban population of the United States, which includes all cities and towns having 2,500 inhabitants and over, is 46.3 per cent. of the total population. In educational statistics the line of distinction has been drawn at cities and towns having not less than 5,000 inhabitants, and for purposes of comparative studies, these communities are classed in four groups which bring together those whose educational needs are similar. The first group includes 50 cities having 100,000 population and over, all of which have given full reports of their school systems for 1913. In this group the enrollment in public schools was 3,130,000, they employed 76,000 teachers, and expended $160,000,000 for the schools; of this amount $29,318,000 was for new buildings, sites, equipment, interest, etc. The second group comprises 185 cities having each from 25,000 to 100,000 inhabitants. Returns from all but two of this group show an enrollment in public schools of 1,362,000 pupils, a teaching force numbering 37,000, and an expenditure of $55,325,000, including $10,447,000 for buildings, sites, etc. The two remaining groups comprise 374 cities having from 10,000 to 25,000 inhabitants each, and 632 cities having from 5,000 to 10,000. Reports

from more than two-thirds the total cities in the two groups give a combined enrollment in public schools of 1,879,000 pupils, a teaching force of 51,800, and an expenditure of $55,148,000, $5,870,000 of this amount for buildings, sites, etc.

The public schools of the four city groups enrolled 6,371,000 pupils, a little more than one-third the enrollment in all public schools of the country; they employed 30 per cent. of all the teachers, and, omitting outlay for sites and buildings, expended $199,264,299 on the schools, more than one-fourth (29 per cent.) of the current expenditure for all the public schools of the country. This liberal expenditure ensures higher salaries for teachers, longer school terms, more extended and varied instruction, and more efficient supervision than rural schools can offer to the 60 per cent. of the school children of the country for which they are responsible. A single item illustrates the distinction between city and country in respect to school advantages. The average duration of the school year in the cities ranges for the first two city groups from 167 to 200 days; for the next two groups the range is from 160 to 200 days. Evidently it is rural districts that bring the average school year for the United States down to 158 days and in several states reduce it below 130 days.

Among the facts brought out in the detailed statistics for cities, the following are significant:

	Population, 1910	Enrollment, 1913		Current Expenditure, 1913[1]
		All Public Schools	Secondary Schools	
New York	4,766,883	738,501	61,262	$35,302,195
Chicago	2,185,283	294,334	20,812	11,628,336
Philadelphia	1,549,008	211,809	14,028	6,338,735
St. Louis	687,029	83,889	6,020	3,487,626
Boston	670,585	92,196	14,783	5,070,509

[1] Does not include buildings, grounds, equipment, interest, etc.

Administration.—Two problems of city school administration have been uppermost during the year, one relating to the size of school boards, the other to the authority of the school superintendent. There is a strong tendency toward reducing the membership of boards and substituting election at large for election by wards. The disposition to invest the city superintendents with full control of scholastic affairs has been shown by several incidents. Notable among these is the decision rendered by the city attorney of St. Louis to the effect that the city charter gives the superintendent the exclusive initiative in educational measures. The tendency in this direction is offset by the employment of business experts for the adjustment of school accounts.

Research Agencies.—Numerous surveys of city systems have been recently made at the request of city officials, one result of which is the establishment in several cities of permanent agencies for work of this general nature. Examples are: the Bureau of Statistics and Research in Baltimore, the Department of Educational Research in New Orleans; the Efficiency Bureau in Rochester, and the proposed Bureau of Reference and Research in New York City. These bodies all have power to call to their aid additional experts and to utilize the results of independent investigations. In view of this development the National Council of Education has continued to enlarge its committee of experts appointed in 1913 to study the general question of standards and tests applicable to schools and school systems.

Psychological and Medical Clinics.—The widening scope of city administration is shown further by the appointment of "consulting psychologists," whose duties bear the same relation to mental infirmities of school children as those of the medical inspector bear to their physical conditions. The latter service has been established in some form in nearly all cities having 10,000 inhabitants and upward, and in many cities having

less than 10,000. In many cases the expenditure thus incurred is included in the total for the schools. Among cities reporting the item separately, Philadelphia leads with an annual expenditure for the medical service of $112,000, Boston and Los Angeles each report $31,000, and Cleveland about $34,000. The service extends rapidly with the progress of hygiene and sanitary science. Physicians, nurses, dental clinics, open-air schools, all have their place in its full equipment. In like manner special classes for backward children, atypical schools, and visiting teachers are the outcome of psychologic clinics.

Courses of Study.—Although the cities of the United States have independent control of their schools, they show striking uniformity in the courses and methods of instruction. The departure from a uniform course of study after the sixth year or grade is a recent experiment successfully carried out in several cities. It gives opportunity for the employment of special teachers of business arithmetic, commercial geography, etc., or the departmental system as it is called, which has been tried in over 400 cities. The tendency is promoted by the widespread movement for vocational training. The outcome of these movements promises to be a reclassification of graded schools on the basis of a six-years elementary school followed by a junior high school and a senior high school each extending over a three-years course.

The Problem of Early Withdrawals.—The chief problem confronting school authorities is that of prolonging the school life of the average child. This is more extended in the cities than in the country but on account of industrial conditions the evils of early withdrawal are more threatening in the cities. One corrective of this evil is found in the adoption of flexible grading and the classification of school children by degree of maturity and aptitude instead of by age or actual grade.

RURAL EDUCATION

The Place of the School in Rural Uplift.—The movement for the uplift of rural life in this country centers in the rural school; its slogan is "the school, a community center." It is easy to show the defects of the rural school, its short annual term, untrained teachers, unfit buildings, etc. A few years since it seemed hopelessly inferior to its city rival, but the outlook has changed, here and there rural communities have raised their schools to the city level but with adaptations to their different requirements.

Chief among the agencies which have brought about this transformation are the annual Conference for Education in the South and conferences of community leaders in different sections, of which the Amherst Conference is a type. Momentum has been added by the Federal Government through the agency of the Department of Agriculture working on the industrial side and of the Bureau of Education in its own province. State universities are fostering centers of the general movement. The University of Wisconsin maintains a bureau for this work, and state departments of education, particularly in the northwestern states, publish plans for community meetings at school houses and send out agents to direct them. Throughout the country the women's clubs have taken up the work and helped to organize school fairs, meetings of parents and teachers, illustrated lectures, etc., which bring the people to the schoolhouse.

School Fairs.—School fairs have proved the most effective of all these events. In Virginia at least 50 county school fairs were held during the summer of 1914 and in a single county prizes to the amount of $1,200 were distributed. In Oregon the best exhibits at local school fairs are selected for display at the state agricultural fair. In 1913 75,000 children, or nearly half the school children of the state, contributed to the exhibits and prizes were distributed amounting in value to $20,000.

School and Civic Leagues.—Virginia has led in the formation of school and civic leagues in the country school districts. This is accomplished by the Coöperative Education Association, a citizens' organization working in conjunction with the state Department of Education. The improve-

ment of the school is one of their chief interests, and in 1912-13 they collectively raised $65,000 which was expended for libraries, pictures, pianos, window shades and other improvements. The leagues at work during 1914 numbered 700.

Supervisors of Rural Schools.—The civic league is but one form of rural improvement associations which are creating a new order of social organization in the United States. They coöperate with the school officers and thus bring the force of community sentiment to bear upon the work of the schools. The results are apparent in the rise of a new office in the system of school administration, that of supervisor of rural schools. Twenty-four states are now employing expert agents who devote all their time to this work. They are carefully chosen not alone with reference to educational qualifications, but for practical knowledge of rural life and organizing ability. Six of the southern states have a second supervisor for the negro rural schools. The work of these state officials is supplemented by that of county and district supervisors selected on the same general principles as the state supervisors. To this company must be added the supervisors of special subjects, in particular such as bear upon rural life and industry. The state supervisor has the whole field under observation, the supplementary officers come into more immediate relations with the schools and the teachers. Through their united efforts the isolation of the district school is overcome. In Illinois a plan of standardizing these schools on a basis comprising grounds, equipments, organizations and teaching has been worked out. Alabama has a similar scheme which includes also "vitalizing agencies," i. e., school gardens, corn clubs, improvement associations, etc. The idea is carried out in modified form in West Virginia and in particular counties in other states. In South Dakota and Minnesota the rural schools are classified and receive from the state bonuses of varying values, according to their rank.

Consolidated Schools.—The highest ideal of rural education is realized in the consolidated school which serves the children of several districts. The number of such schools has increased during the year, notably so in Louisiana, Tennessee, Mississippi, Utah and West Virginia, all organized on the county or township basis. Several states organized on the district plan have promoted consolidation by special state aid to schools of this type. In other states a limit has been placed by law to the number of grades which shall be allowed in a school with only one teacher. This forces the school authorities to make additional provision for the upper grades.

Rural High Schools.—The multiplication of rural high schools is a natural result of the entire movement. They differ from other secondary schools by the organization of agricultural departments with special aid from the state. During the past three years Mississippi has invested in high schools of this character $1,000,000; Louisiana has 28 rural high schools each receiving $1,000 a year from the state for its agricultural department; Missouri began operations in 1914 under an act of 1913 providing for extra appropriations to rural high schools.

Teachers for Rural Schools.—Some progress has been made in solving the most difficult of rural school problems, namely, that of securing competent teachers. State normal schools are providing special courses for rural school teachers, and the legislatures of 14 states have authorized the establishment of teacher-training departments in approved high schools for which extra appropriations are allowed.

EDUCATION OF THE NEGRO

Public Schools in the South.—Negroes form very nearly 11 per cent. of the population of the United States and they contribute 30 per cent. of the total illiterates above 10 years of age. In the two southern divisions of the country their ratio to the total population is about 30 per cent., or considering the school population only, 31 per cent.; they contribute in these sections one-third of the illiterates. The education of the negro is therefore locally a problem of the South. The following table brings into comparative view school statistics of the

two races in the 16 southern states, Missouri and the District of Columbia:

	White	Colored
Enrolled in public schools	5,473,147	1,769,859
Average daily attendance	3,598,492	1,089,354
Per cent. of enrollment	66.75	66.55
Number of teachers	144,326	33,116
Number of pupils to one teacher	38	51

The total expenditure for common schools in the South increased in the half decade 1906-07 to 1911-12 from $53,000,000 to $95,600,000. Undoubtedly the negro schools shared in this increase, but data are wanting for comparison in this respect.

In 1910 there were 141 public high schools for negroes with 473 teachers and 8,251 students; in 1913 the schools had increased to 156 with 566 teachers and 10,594 students.

Private Institutions.—Elementary, secondary and higher institutions supported largely by benefactions form a very important part of the provision for the education of negroes. In 1913 schools of this class numbered 270, with 3,458 teachers (1,557 men, 1,901 women) and 68,382 students, distributed as follows:

	Male	Female	Total
Elementary	15,651	22,903	38,554
Secondary	10,439	14,965	25,404
Collegiate and professional	3,391	1,033	4,424
Total	29,481	38,901	68,382

In this class are included 17 institutions that share in the grants for colleges of agriculture and the mechanic arts. Industrial training of a substantial character is a feature of the more important schools and fully one-half the students receive its benefits. The annual incomes of the schools as reported range from $84, for a school with 12 pupils, to $158,000, the income of Howard University, and $272,736, the income of Tuskegee University. Public appropriations were received by 72 of the schools in amounts varying from $60 to $92,000, the latter being the appropriation by Congress to Howard University. The incongruous character of schools which present such a wide difference in scope and resources is apparent. By concerted action the denominational, public and private agencies engaged in the support of this class of schools have undertaken an investigation of the entire field, with a view to the more efficient conduct of the smaller institutions and the more economical use of funds.

Industrial Training. — The most hopeful sign in regard to negro education in the South is the spirit of self-help developing among the people and its purposeful direction by their leaders in the economic and industrial movement which is the hope of the race. An effective field for this activity was opened up in the service of industrial and rural school supervision created by the Jeanes Fund (*A. Y. B.*, 1913, p. 814). The importance of a liberal policy in respect to the education of the negro has been emphasized during the year by exhibits of the industrial capabilities of the race. A striking example was the exhibit in connection with the session of the National Negro Business League held at Muskogee, Okla., in August. In this state and the five adjoining, negroes own 60,000 farms covering 6,000,000 acres of land, representing in land, stock and implements a value of $200,000,000. It is estimated that altogether there are 90,000,000 acres of farm land in the United States under cultivation by negroes, either owners, tenants or farm laborers.

SECONDARY EDUCATION

Statistics of High Schools.—In the United States the province of secondary education is precisely defined by the public and private high schools. The decade 1901 to 1911 was marked by a phenomenal increase in the number of public high schools, especially in the southern states. The continued increase is now more uniform throughout the country and is largely due to the multiplication of high schools in small towns and of county schools central to rural districts. The following table shows the distribution of public and private high schools by geographic divisions:

Geographical Divisions	Public High Schools					Private High Schools				
	Number	Teachers	Students			Number	Teachers	Students		
			Boys	Girls	Total			Boys	Girls	Total
United States.	11,277	53,738	501,958	632,813	1,134,771	2,168	13,354	69,542	78,696	148,238
No. Atlantic..	2,318	15,048	157,513	189,208	346,721	684	5,172	26,168	26,559	52,727
No. Central..	5,113	22,658	204,334	260,497	464,831	553	3,227	14,062	21,194	35,256
So. Atlantic..	1,263	3,962	33,686	46,108	79,794	341	1,877	11,422	11,728	23,150
So. Central...	1,644	5,737	49,614	67,306	116,920	389	1,831	12,580	11,287	23,867
Western.....	939	6,333	56,811	69,694	126,505	198	1,247	5,310	7,928	13,238

Growth of Public High Schools.—In 1901 there were 6,318 public high schools with an enrollment of 541,730 students; in 1911 the schools numbered 10,234 and the students 984,677; in 1913, the schools were 11,277 in number and the enrollment of students 1,134,771, the latter showing an increase of 15 per cent. in two years.

The growth in the number of high schools and in their enrollment is the most significant sign of an enlarged conception of the meaning of education in a democracy. Children have been kept too long at very elementary tasks and the new departures and experiments in the public-school system relate particularly to the correction of this mistake. The "six-and-six-plan" of grading, already referred to, is intended to take the pupil out of the infantile stage of learning just at the moment when he feels the need of definite aims in his efforts. The plan has received authoritative sanction from the National Education Association and is already in operation in many communities. Two types of classification emerge in this movement: one the plan of 12 grades adopted in New Jersey and Massachusetts, the high school being in this case merely a natural evolution of the upper grades; the other the convenient division of the school period into six years elementary, followed by junior high school and senior high school, each having a three-years course. In either case the pupil after the twelfth year of age comes under training for definite purposes. In both types the crux of the school problem lies in the seventh to tenth grades, or the period of the junior high school. The senior school has its adjustments from the college or university; the junior high school has to work out new adjustments to life, social and industrial. The extent of this change cannot be shown by statistics, but its bearing is indicated by the distribution of pupils among the several courses of instruction in the public secondary schools. In 11,122 high schools reporting under this head in 1913, the distribution was as follows:

Courses	Public High Schools		Private High Schools	
	Schools	Students	Schools	Students
Academic	11,122	880,239	2,168	128,390
Commercial	2,091	154,042	704	15,940
Technical or Manual Training	1,173	77,735	138	4,583
Training for Teachers	931	21,425	265	5,626
Agricultural	1,297	27,593	117	2,322
Domestic Economy	1,339	67,075	288	7,312

The academic course covers four years, extended to six years in the new plan. It comprises parallel sections, classical or scientific according to choice, and it affords adequate preparation for advanced college work. The enrollment in this division exceeds four-fifths of the total students (1,034,940) in the 7,839 high schools having full four-year courses.

Preparation for College.—The varied demands upon high schools are indicated not only by the distinct course of instruction which they offer, but also by the proportion of their students in college-preparatory

courses either classical or scientific; in public high schools this proportion is a little less than six per cent.; in private high schools a little more than 16 per cent. Of the graduates from public high schools in 1913, 35 per cent. had prepared for college, and of those from private schools 41.6 per cent. It is noticeable that private high schools retain a larger proportion of their pupils (28 per cent.) through the entire four-year course than do public high schools (17 per cent.); also that a larger proportion of the graduates of private high schools are prepared for college. The total number of graduates in 1913 and the number expecting to enter college were as follows:

	Public High Schools	Private High Schools
Graduates in the class of 1913:		
Boys	59,106	8,939
Girls	88,968	10,104
Total	148,074	19,043
College preparatory students:		
Boys	26,780	5,255
Girls	25,140	2,800
Total	51,920	8,055
Students preparing for higher institutions:		
Boys	6,431	650
Girls	17,404	1,401
Total	23,835	2,051

To make up the full period of secondary education as measured by European standards, an upward extension of the academic course of the high school for at least two years more is required, and therefore the question of standards in secondary education pertains to both high school and college. Without close coördination between the two, precious time is wasted in the passage from one to the other and hence the prominence of their relation in current discussions of the general problem.

Private High Schools.—Private secondary schools are affected by the spirit of the age but are freer than public schools to choose their response to its demands. A large proportion are boarding schools and have control over the entire life of their pupils. All the religious denominations are active in promoting the efficiency of their schools by closer coördination and more definite standards. The Roman Catholics have the most comprehensive system, extending from parochial schools with their 1½ million pupils to the University. The value of the parochial school property in Greater New York is estimated at $10,000,000, and the annual expenditure for maintenance at $1,000,000. The parochial schools adopt the standards of the public schools and annually contribute their quota of students to the regents' examinations and the examinations for entrance to Hunter College. The entire system is unified by the activities of the Catholic Education Association, which held its tenth annual meeting at Atlantic City in 1914. The Lutherans maintain a parochial school system which is educating nearly 300,000 children and youths under instruction of teachers trained in Lutheran normal schools. The system is in charge of different synods, and, while its elements are animated by a common ideal, it lacks organic unity.

Income of Secondary Institutions.—The cost of public high schools cannot be exactly determined as it is not always separated from the total school expenditure. The income of 3,600 public high schools as reported in 1913 was $21,453,000. Of this amount 93 per cent. was from public appropriations. The income of 1,015 private secondary schools was $11,484,000, of which 68 per cent. was from tuition fees. The contrast emphasizes the liberal provision freely offered for the public education of the people.

Special Training in High Schools.—The different purposes which high schools must serve have led in all the larger cities to the provision of business high schools and manual-training high schools. In like manner special needs of rural life have been met by the establishment of agricultural high schools, that is high schools in which the entire course of study centers in preparation for rural life and industry. In this class are included 47 state schools, 40 district schools, and 67 schools maintained by counties.

The latest addition to high-school specialties is the training course for teachers, an expedient for increasing the supply of trained teachers in the rural districts. Starting in New

York State, the plan has spread rapidly, especially in the Middle West, where it is fostered by liberal appropriations. This expedient is not intended to replace normal schools but to supplement them.

Fraternities in High Schools.—The movement for abolishing fraternities in high schools received new impetus during the year by the action of the Pan-Hellenic Congress, representing 70,000 college women. Hereafter no sorority represented in the Congress will initiate any young woman who was a member of a secret society in a high school. Similar action had already been taken by several fraternities for men.

TRAINING OF TEACHERS

The Teaching Profession.—The public schools of the United States employ 550,000 teachers, of whom 20.9 per cent. are men as against 29.9 per cent. in 1900. In the elementary schools the men form only 18 per cent. of the teaching force; in the high schools they form 44 per cent. of the total number. In respect to the requirements for entering the teaching service this country presents a wide deviation from a fair standard. In the cities the standard is generally high and the majority of teachers are well prepared for their work; in the rural districts at least one-third of the teachers have had no professional preparation and a large proportion of the remainder only the minimum required for a low-grade certificate. At a national conference on the subject held at Chicago in September resolutions were adopted urging that all possible agencies be enlisted to overcome this evil. The conference was called by the Federal Commissioner of Education at the request of many state authorities, and as these control, in some measure, the institutions whose aid is required in the endeavor, the resolutions carry the promise of speedy action. To some extent all classes of public schools above the elementary grades include teacher training in their programme; it is only needed that the work should be extended and strengthened.

Normal Schools.—The special function of normal schools is the preparation of teachers for the grade and rural schools. Provision for this work has been increased by the normal departments established in county high schools; the status of this provision is shown by the following statistics for 1912-13:

Class of institution	Institutions	Students
Public normal schools	230	87,172
Private normal schools	54	7,283
Public high schools	931	21,425
Private high schools	265	5,626
Total	1,480	121,506
All public institutions	1,161	108,597
All private institutions	319	12,909

The distribution of public normal schools by geographic divisions in 1913 was as follows:

Geographical Divisions	Schools Reporting	Teachers Employed	Total Enrollment, Excluding Model Schools			Total Receipts[1]	Public Appropriations for	
			Male	Female	Total		Current Expenses	Permanent Works
United States	230	5,800	23,870	79,325	103,195	$14,439,061	$7,797,393	$2,634,859
No. Atlantic	70	1,803	3,545	18,722	22,267	3,713,906	1,654,967	568,411
No. Central	81	1,926	9,378	32,365	41,743	5,273,126	3,446,412	1,262,035
So. Atlantic	28	754	3,091	8,587	11,678	2,140,669	740,293	360,054
So. Central	30	873	7,049	13,389	20,438	2,068,420	1,073,484	232,750
Western	19	454	807	6,262	7,069	1,242,940	882,237	211,609

[1] Only 202 schools reporting.

Massachusetts has taken the lead in establishing state training schools for vocational teachers. The first school of this order will be located at Springfield and four additional schools are included in the general plan. It

is expected that the 40 industrial schools recently established in the state will draw their special teachers from this source.

Summer Schools.—In addition to the preliminary preparation for teaching there is a great demand on the part of teachers themselves for the means of extending their knowledge and professional efficiency; this demand is largely met by summer schools, including summer sessions of universities, colleges and normal schools as well as the more restricted summer institutes. The number of summer schools held in 1913 was 673, and the number of students 181,288 (62,625 men, 118,663 women). They employed 11,722 instructors and 1,910 lecturers. The average length of the sessions was 7.2 weeks; only 20 schools reported sessions of less than four weeks. Of the entire number of schools 43 were maintained by universities, 48 by colleges and 85 by normal schools.

University Training.—A university degree is required not only for professors of education in the universities, but also, as a rule, for teachers in high schools, at least in the cities; hence there is a large enrollment in the university departments of education The number of degrees in education conferred in 1913 was 1,044, of which 224 were for men and 820 for women. A very large proportion of the degrees in philosophy are also obtained by students intending to teach or already engaged in that work.

Salaries.—The problem of the supply of competent teachers for the public schools received new emphasis during the year by the publication of a bulletin of the Federal Bureau of Education under the title "The Tangible Rewards of Teaching." This work comprises the results of an inquiry into the salaries of teachers and professors which was instituted by the National Education Association and accomplished under the direction of an expert official of the Bureau. The information is in statistical form without note or comment, but will enable states and individual communities to discover their exact status in the salary scale.

Wide variation in the pay for the same or similar work is one of the most striking situations revealed by the investigation. Public elementary school teachers may receive $2,400 a year, as some do in New York City, or $45 a year, as in certain rural communities. Even in cities of the same class there are considerable differences in the salaries. On the administrative side there are county superintendents with pay ranging from $115 to $4,000 per annum, and college presidents receiving salaries all the way from $900 to $12,400.

In city school systems salaries have increased steadily in recent years, particularly in the western states. The average salary of the superintendent of schools in cities of over 250,000 population is $7,178; the range is from $4,000 to $10,000. In the same group of cities high-school principals average $3,565 and elementary teachers $1,018. Even in the smallest cities listed, those between 5,000 and 10,000 population, salaries are fairly uniform. The maximum for superintendents in this group is $3,600 and the average $1,915; elementary teachers show an annual average of $533, with salaries as high as $1,350 and as low as $104.

The city of Cincinnati in 1914 placed women on an exact equality with men in all capacities and branches of the public-school service.

HIGHER EDUCATION

Institutions.—The report of the Commissioner of Education for 1913 contains tabulated particulars of 596 universities, colleges and technical schools, which have two common characteristics—they require for admission proof that the candidate has finished a preparatory course equivalent, at least, to that of a public high school; they are also authorized by law to confer scholastic degrees. The number of instructors and students in the institutions classified as higher during the scholastic year 1913-14 is given by the following table, which indicates also the scope of these institutions in preparatory, collegiate and professional education:

Geographical Divisions	Institutions	Professors and Instructors				Students			
		Preparatory Departments	Collegiate Departments	Professional Departments	Total (excluding duplicates)	Preparatory Departments		Total (excluding duplicates)	
						Men	Women	Men	Women
United States.	596	4,483	19,858	7,047	30,895	37,372	19,957	216,626	118,593
No. Atlantic..	116	770	6,439	2,248	9,355	8,617	2,832	65,674	25,168
No. Central...	217	2,082	7,105	2,644	11,851	15,812	7,489	85,152	53,608
So. Atlantic...	113	674	2,336	684	3,535	5,070	4,208	24,786	13,778
So. Central...	98	549	1,800	886	3,235	5.157	4.422	22,558	14,354
Western.....	52	408	2,178	585	2,919	2,716	1,006	18,456	11,685

The preparatory departments comprised in the table belong to secondary education, and since, as a rule, they have their own instructors, they do not lessen the college forces. In the case of Roman Catholic colleges, the scheme of education is intended to include the preparatory stage, the college province being, however, distinctly defined. In the present survey the preparatory departments will be disregarded. The students in the departments pertaining to higher education are classified as follows:

Collegiate (undergraduates)	190,147
Others or special	38,185
Graduate	12,084
Professional	36,869
Total	277,285

The table following shows the property values and incomes of the higher institutions as far as reported:

Geographical Division	Value of Library, Scientific Apparatus, Machinery, and Furniture	Value of Grounds	Value of Buildings, Including Dormitories	Productive Funds	Receipts 1912–13	
					Total, Exclusive of Additions to Endowments	Total, Including Endowments
United States..	$64,204,619	$87,557,158	$260,353,851	$350,038,287	$93,545,381	$109,590,855
No. Atlantic....	21,929,248	29,580,681	98,460,645	171,781,504	34,221,727	42,111,230
No. Central....	24,305,484	28,550,393	79,807,324	90,335,110	33,056,069	37,425,373
So. Atlantic....	6,010,532	12,954,485	37,692,860	20,088,366	10,225,059	12,075,440
So. Central.....	4,479.222	7,236,567	19,752,259	20,324,874	7,226,624	7,419,939
Western.....	7,480,133	9,235,032	24,640,763	47,508,433	8,815,902	10,558,873

The range of tuition fees is wide. State universities, as a rule, are free to citizens of their respective states, but there is an annual charge for library, laboratory, etc., the lowest reported being $10. The highest annual tuition fee reported is $250, but in all there are only seven institutions in which the annual fee exceeds $150. The advantages of free tuition in state universities are partially offset in others by scholarship funds. Of the total of 13,282 scholarships reported, 4,711, or more than one-third, representing a value of $618,163, belong to 17 private institutions.

The Undergraduates.—As regards numbers the undergraduates represent the great function of higher institutions in the United States; the registration here comprising 190,147 students, which is 75 per cent. of the student body, or 89 per cent. if the professional departments are omitted. With few exceptions the questions of chief current discussion in respect to higher education relate to the welfare of undergraduates. Many of these questions are perennial but with varying emphasis. The value of small colleges was in the foreground three years ago; the question of fraternities and athletics was hotly discussed in 1913; coeducation shows an interesting curve of ascent and descent; at present standards and bases of classification divide attention with tests of efficiency. As compared with the stable condition of foreign systems, higher education in the United States seems, therefore, to be in a state of flux, although, in fact, radical changes take place slowly and are apparent only in the survey of periods.

Diversity of Degrees.—In the record of undergraduate departments two conditions are noticeable, the variety of courses offered, and the variety of degrees to which they lead. To the old distinction of classical and scientific there is now added technical, and this comprises no less than 15 subdivisions, each leading to its special diploma. At the graduating exercises in 1913 thirty-six varieties of bachelor's degrees were conferred in colleges for men and for both sexes, to which the colleges for women made two additions. Several of the number were simply different signs for the same thing; others were the signs of electives introducing slight variations in group studies. In one or two institutions the master's degree takes the place of the bachelor's degree and there are seven forms of first degrees in engineering which omit the sign for bachelor.

Coeducation as a vital problem affects individual colleges at times. The general policy in this respect is indicated by the following particulars. The colleges for men only number 145 with 37,503 undergraduates; the colleges for women only, 105, with 18,896 students; coeducation colleges, 346, with 82,877 men in their undergraduate departments and 50,871 women. In other words, of all the men students 68.8 per cent. are in mixed colleges, and of all women students, 80 per cent.

Junior and Senior Colleges.—Of the 596 higher institutions reported, 291, or very nearly one-half, confine themselves to undergraduate work; that is, they have no graduate students and no professional departments. There is a decided tendency throughout the country toward a limitation of scope according to the resources or the clientèle of an institution. This tendency is taking two directions, one that of concentration on a very strong but well balanced undergraduate course or on a very strong specialized technical course, the other a limit in duration of this course. The latter tendency has gained great impetus during the year and already in several states junior and senior colleges have legal recognition. Missouri has seven of the former class whose graduates are admitted to the junior class of the state university; the education department of Wisconsin recognizes normal schools as junior colleges; in Virginia several colleges for women have the same rank; in California and some other states the high-school course has been extended from four to six years, the last two years of the course offering practically junior college work and preparing students for admission to state universities.

The legal recognition of junior colleges makes it necessary that their scope should be defined, and in several states committees have been appointed for this purpose, in the interests of education departments, associations, etc. The Association of Southern Colleges and Secondary Schools at its annual meeting of 1914 adopted the report of a committee appointed the preceding year to advise in the matter. While some of the recommendations were opposed, the opinion was unanimous that the entrance requirements should be the same for junior and senior colleges.

College Entrance Requirements.—These various measures all pertain to the general movement for shortening the period between the elementary school and specialized university study and unifying college standards. The greatest interstate or sectional organization engaged in this effort is the North Central Association of Colleges and Secondary Schools in which 16 states are represented. Heretofore the activities of the association have been directed mainly to the relations of secondary schools with colleges, and in this province, as stated by a well-known authority,

> although its decisions are understood to be advisory only, it has been a very potent factor in elevating secondary education through its commission on accredited schools and its published list of such schools. . . . Only those universities, colleges or junior colleges are eligible for membership which require for admission 15 units of secondary work, and no secondary school is eligible which does not provide these 15 units.

Since 1910 this requirement has been extended so that "after April 1, 1912, no college or university shall be eligible to membership which is not on the list of accredited colleges of

the association." It was not until March, 1913, that the preliminary investigation was completed which established a list of 73 institutions meeting the requirements, two of the number being junior colleges.

The movement for raising college entrance requirements is offset by a tendency toward greater flexibility in respect to the requirements and the means of testing candidates. This is indicated by recent discussions of the subject in the reports of the chief institutions that admit undergraduates upon examination only, by measures adopted at Yale for simplifying the method of its examinations, and by the decision of Stevens Institute to accept students on certificates beginning with 1914.

Courses of Study.—The undergraduate department or college proper is not only of great importance in itself but in its relation to higher departments. The latter relation is mainly the cause of the acute controversy over standards which was excited by the rulings of the Carnegie Foundation and has been intensified by other attempts to evaluate the work of different colleges and different courses of study. Special interest attaches, also, to the relative demand for different courses of undergraduate study. The only clue we have to this relation is the number of degrees conferred in the different orders of undergraduate study. The showing for 1913, first degrees alone, is as follows:

Degree	Men	Women	Total
B. A. and equivalents	8,379	7,460	15,839
B. S. and equivalents	4,995	1,089	6,084
B. Ed. or B. Ped	198	848	1,046
B. Ph	685	338	1,023
B. Agri	425	13	438
B. H. Econ	77	132	209
B. Com. Sci	150	.....	.....
B Mus	11	155	166

Technical degrees, conferred on men only, were as follows: Civil Eng., 932; Mech. Eng., 725; Elec. Eng., 306; Min. Eng., 348; B. Chem., 198; B. Arch., 83.

Variations in Function and Control.—The classified degrees suggest a difference in functions on the part of the institutions themselves. Eighteen are technical schools and above 20 are land-grant colleges either specialized as schools of agriculture or combining this subject with mechanic arts. The remaining land-grant colleges are departments of universities.

Of the total number of higher institutions 94 are controlled by states or municipalities, and 502 by private corporations. The former in 1913 registered 79,579 students in their undergraduate and graduate departments, the latter, 122,652. In the record of the public institutions two facts are impressive, the liberal appropriations for their support and the increasing exercise of state authority in their affairs. The current report of the Bureau of Education says:

> In each of three states the biennial appropriation made by the legislature of 1913 for the support of the state universities passed $3,000,000, and in the case of the University of Illinois the appropriation from the fund created by the mill tax and exclusive of revenue from Federal land grants, student fees, etc., reached the astonishing total of $4,500,000 for maintenance, improvements, and land purchases. The total biennial appropriation for the University of Wisconsin was $4,130,440; for the University of California approximately $3,900,000. In the last two cases the appropriations were from current state revenues, and by no means indicate the total revenue of the institutions mentioned.

Among the evidences of the increasing exercise of state authority in this field is the establishment of a central board for the supervision of the several higher institutions in a given state. Such action in Montana was preliminary to the union of the College of Agriculture, the School of Mines, and the State Normal School, which, in accordance with a legislative act of 1913, now constitute the University of Montana. In Idaho a state board has been created to administer the entire system of education including the university.

There is also a noticeable disposition on the part of several states to extend public aid to private institutions with reserve of the right to inspect the institutions aided. New York affords the most striking example of this policy. It is illustrated also by the unusual combination of

private benevolence with state and municipal appropriations for the George Peabody College for Teachers at Nashville, Tenn.

Graduate Departments.—Graduate and professional departments mark the university as distinguished from the college, and the strength of these departments depends so largely upon their material resources that equipments and endowments have come to be regarded as the measure of possibilities in this higher field. Considering graduate departments only, it appears that of 12,084 students registered under this head in 1913, 63 per cent. were in 14 universities each having more than 200 graduate students. The combined endowment funds of the 14 institutions amounted to $148,513,732, which was 42 per cent. of the endowment funds reported from the entire number of higher institutions. Nine of the 14 had endowment funds exceeding $5,000,000, the range being from $5,000,000 to $29,348,000. These facts illustrate the steadily increasing movement of students toward great centers, either state universities or rich private foundations, which offer the fullest provision for advanced study and research.

Broadening Curricula.—The interest in administrative problems of higher education obscures somewhat the rapid expansion of its curricula. At the present time this is marked by two opposite tendencies, one eminently practical, the other ideal. The former is illustrated by the provision for instruction in home economics, which has been raised to the scientific plane largely through the activities of the Department of Agriculture. The second tendency is marked by the lavish provision for instruction in dramatic art and in music, signally illustrated during the year by the completion of the fine building for the music department of Harvard University and the celebration of the close of the first half year of the school of dramatic art of the Carnegie Institute of Technology at Pittsburgh.

University Extension.—The predominant idea of service to the people is shown by the rapid growth of university extension activities. In 1891 28 states and territories reported university extension in some form. Between 1892 and 1906 12 institutions organized extension teaching, mainly in agriculture, and since 1906 28 universities and colleges have introduced the work, while 21 others have reorganized their extension work on a basis of separate divisions or departments. (See also XVII, *Agriculture.*)

Colleges of Agriculture and the Mechanic Arts.—The land-grant act of 1862 which created a distinct class of colleges assumes new importance with every passing year. The equipment of the colleges for practical work has been greatly extended by the appropriations for the experiment stations; upon the latter, as already shown, new appropriations have been lavished during the year. There are now 68 institutions sharing in this government bounty, 52 for white students and 16 for colored. Of the former, 28 are distinctively colleges of agriculture and the mechanic arts; one, the Massachusetts Institute of Technology, is practically a specialized university; 23 are departments of universities.

The extent to which the Federal Government and the states coöperate for the support of these institutions is shown by the following statement of the sources and amount of income at the beginning and close of the last half decade:

Sources	1909	1913
Income from endowment granted by state	$98,353	$131,415
Appropriations for current expenses	3,723,992	6,703,831
Tax levy for current expenses	2,559,995	3,095,341
Appropriations for increase of plant	3,488,767	3,695,249
Tax levy for increase of plant	715,171	591,924
Total state aid	10,586,278	14,217,760
From land grant of 1862	763,275	859,074
From other land grants	161,791	186,551
From additional endowment, acts of Aug. 30, 1890, and March 4, 1907	1,750,000	2,490,000
Total Federal aid	2,675,066	3,535,625
From other endowment funds	783,719	966,204
Tuition and incidental fees	2,159,967	2,683,960
From miscellaneous sources	2,390,863	3,558,590
Total income	18,595,893	24,962,139

The separate appropriations for extension work and farmers' institutes amounted to $722,425. The colleges received for experiment-station work, from the states, $1,024,455, and from the Federal Government, under the provisions of the Hatch and Adams Acts, $1,359,302. The total income of the 68 land-grant colleges for all purposes of the year ended June 30, 1913, was $28,068,321. Of this amount, 56 per cent. was received from the Federal Government and 17 per cent. from the states. Excluding the experiment-station funds and the extension-work and farmers'-institute funds, 57 per cent. was supplied by the Federal Government and 14 per cent. by the states. (See also XVII, *Agriculture.*)

Twenty of the colleges for white students and all those for colored students have preparatory departments; secondary schools of agriculture are connected with 11 of the colleges, and all carry on some form of extension work. The number of instructors employed by the agricultural and mechanical colleges during the year ended June 30, 1913, was 8,715. Of the total 439 were instructors in the 16 separate institutions for colored students. The students numbered 90,705 white and 8,561 colored.

Miscellaneous Events.—The School of Education of Teachers College, Columbia University, became a graduate school on July 1 and henceforth will offer only an advanced curriculum leading to the degree of Master of Arts or Doctor of Philosophy. Admission to the school will be limited to those students who hold an approved bachelor's degree or who have had equivalent training of at least four years beyond the high school.

Brown University, which in the order of foundation was the seventh of the nine pre-Revolutionary colleges, celebrated its one hundred and fiftieth anniversary Oct. 11-17. The varied exercise gave full expression to the early and later ideals of the institution, while music and pageants supplied its historic background.

The formal opening of the American University, the Methodist Episcopal institution near Washington, took place on May 27, 1914.

The fiftieth anniversary of Gallaudet College for deaf mutes was celebrated with interesting ceremonies on June 23.

Wellesley College suffered heavy loss in the destruction by fire on March 17, 1914, of the old college hall. Generous responses to the appeal for help have already assured a new building.

In the fall term the Catholic University at Washington began its new research department on the endowment fund of $500,000, established by the Knights of Columbus. Forty-one graduate students from 23 states were registered. These young men, selected by examinations, will pursue a course of three years leading to the degree of doctor of philosophy.

The Johns Hopkins Medical School celebrated its silver jubilee Oct. 4-8, with appropriate ceremonies.

The University of Pennsylvania opened its School of Education in the fall term with a faculty of its own. The dean of the school is Dr. Frank P. Graves, professor of education.

Personal Notes.—Rev. Mark J. McNeal, S. J., a member of the faculty of Georgetown University, Washington, D. C., was appointed professor of English at the University of Japan. This institution was established at Tokio by the Jesuits in 1912 and has been formally recognized by the Government of Japan.

Dr. John Huston Finley, formerly president of the College of the City of New York, was inaugurated as President of the University of New York and state Commissioner of Education on Jan. 2.

Dr. Harvey Pratt Judson, president of Chicago University, heads the commission selected by the Rockefeller Foundation to investigate medical conditions in China.

Dr. Hermon C. Bumpus, business manager of the University of Wisconsin and distinguished also in the world of science, has accepted the presidency of Tufts College.

Dr. W. B. Bizzell resigned the presidency of the State College of Industrial Arts for Women, Denton, Tex., to accept the presidency of the Agricultural and Mechanical College of Texas.

The choice of Dr. Frank J. Goodnow to succeed Dr. Ira Remsen as president of Johns Hopkins Univer-

sity is a notable event in the history of that foundation. Dr. Goodnow, who held the Eton professorship of administrative law and municipal science at Columbia University, at the time of his appointment was in China as special adviser in the reform of the Chinese constitution. He assumes the direction of Johns Hopkins as that institution enters upon a new era, marked by its transfer to the beautiful site at Homewood, and by the addition of a technical school to be supported by the state with an endowment of $3,000,000, and by the expansion of the medical faculty through the $1,250,000 fund contributed by the Rockefeller Foundation.

Prof. Thomas A. MacBride, who has been acting as president of the University of Iowa since the resignation of John G. Bowman, was appointed permanent president by the state Board of Education on June 6.

Dr. Sidney Edward Mezes, president of the University of Texas since 1908 and previously professor of philosophy at that institution, was chosen to succeed Dr. John H. Finley as president of the College of the City of New York and assumes the duties of that position on Dec. 15.

Alfred Noyes, the English poet, accepted an invitation to join the faculty of Princeton University as visiting professor of English literature.

Dr. William Wesley Guth was inaugurated president of Goucher College, Baltimore, succeeding Dr. Eugene A. Noble.

Rufus Bernhard von Kleinsmid has succeeded Dr. Arthur A. Wilde as president of the University of Arizona. The new incumbent is the author of several monographs pertaining to education and psychology.

Dr. Frederick H. Sykes has accepted the presidency of the College for Women, New London, Conn. Dr. Sykes was educated at Toronto University and was a fellow of Johns Hopkins, 1891-5, and member of Exe ter College, Oxford, England, 1899.

Dr. Henry Noble MacCracken, professor of English in Smith College, was chosen president of Vassar College on Dec. 15 to succeed Dr. James Monroe Taylor. Prof. John Henry MacCracken was elected to the presidency of Lafayette College on Dec. 14.

PROFESSIONAL EDUCATION

Statistics of Professional Institutions.—Education for the liberal professions, using the term in distinction from the technical professions, is the work of independent schools and university departments. The following statistics summarize the latest data respecting this class of institutions:

Class	Schools	Instructors	Students	Increase (+) or decrease (—) over 1912	Graduated in 1913	Students having a degree
Theology	179	1,269	10,965	— 277	1,977	4,824
Law	124	1,460	20,878	+ 118	4,427	4,428
Medicine	108	7,290	17,238	—1,214	3,426	2,146
Dentistry	48	1,441	8,015	+ 825	1,976	190
Pharmacy	75	784	6,165	+ 2	1,813	52
Veterinary medicine	22	351	2,324	+ 42	633	21

Class	Value of Grounds and Buildings[1]	Endowment Funds[1]	Benefactions[1]	Total Income[2]	Volumes in Libraries[1]
Theology	$23,296,518	$38,514,924	$2,336,510	$5,585,272	2,933,587
Law	5,458,822	2,315,245	189,453	1,877,902	988,893
Medicine	27,585,874	12,679,436	1,135,562	4,753,660	626,307
Dentistry	2,785,237	461,915	12,000	1,197,395	108,118
Pharmacy	2,211,763	205,000	54,284	510,251	105,434
Veterinary medicine	1,503,629	.....	1,250	525,142	74,090

[1] So far as reported. [2] All sources.

Certain recent tendencies in professional education are disclosed by the following comparative statistics covering the period 1900-1913:

	1913	1910	1900
Theology:			
Schools	179	184	154
Students	10,965	11,012	8,009
Graduates	1,977	1,759	1,773
Law:			
Schools	124	114	96
Students	20,878	19,567	12,516
Graduates	4,427	4,233	3,241
Medicine (all classes):			
Schools	108	135	151
Students	17,238	21,394	25,213
Graduates	3,426	4,448	5,219

Medical Schools.—The most significant fact brought out in the comparative view is the decline in the number of medical schools and students. This is a direct result of the measures for raising entrance requirements and prolonging the period of professional study, an improvement brought about largely by the efforts of the American Medical Association, reinforced by the investigations of the Carnegie Foundation for the Advancement of Teaching and the benefactions of the Rockefeller Foundation. In 1913 there were 31 medical schools which required for admission at least two years' work in a college of liberal arts in addition to a four-year high-school course; seven additional colleges have been added to the list during 1914. In 1913 there were also 21 medical schools that required for entrance at least one year of college work following a four-year high-school course, and 23 announced the intention of adopting this requirement in 1914. Of state medical licensing boards, 15 have adopted preliminary requirements including from one to two years' work in a high-grade college.

Equally striking is the advance in the work of the medical schools themselves. In all schools of repute the course of instruction leading to a diploma covers at least four years. A fifth year is added by many schools but is required in two schools only. As a rule the additional year is for hospital practice. In 1910 the medical school of the University of Minnesota extended its course for the M. D. degree to five years, including the "interne year"; the Rush Medical College, Chicago, and the medical department of the Leland Stanford Junior University have followed the example in 1914. Recent endowments on a lavish scale have created several centers of medical education and research of almost unlimited resources. The movement begun in 1913 by the concentration of funds upon a few schools of high order has been continued by the completion and adequate endowment of a new pathological laboratory at Yale, by the successful completion of the fund of one and a half million dollars for the medical department of Western Reserve University at Cleveland, and by enlarged facilities for hospital practice at the medical school of the University of Cincinnati and the Washington University Medical School, St. Louis.

The progress in the standards and resources of medical education has been accompanied by a deepening sense of its vital relation to the general welfare. States are exercising large control of the schools which they endow, and both civil and university authorities are taking measures to bring the public-health service under professional direction. Graduate courses leading to a diploma of public health have been established at the University of Pennsylvania, at Harvard, Michigan, and Wisconsin, and an endowed chair of public health has been inaugurated at Harvard.

Nurse Training Schools.—The statistics of nurse training schools show continued though small increase. They numbered 1,057 in 1912, with 32,389 students and 8,062 graduates; in 1913 the number of schools was 1,094, with 34,417 pupils and 8,937 graduates. The District of Columbia and 34 states now have laws prescribing examinations and other tests for the "registered nurse."

Law Schools.—The Carnegie Foundation for the Advancement of Teaching has formulated plans for an investigation of legal education in the United States, to be conducted in the same thorough manner as the previous investigation of medical education. This action has been taken at the request of the Committee on Legal Education and Admission to the Bar of the American Bar Association and indicates a widespread conviction that the standards of legal education and admission to the bar should be raised and brought to greater uniformity throughout the coun-

try. (See also IX, *Law and Jurisprudence.*)

The trustees of the University of Pennsylvania adopted a resolution during the year, the effect of which will be to require a college degree as a requisite for admission to the law school of the university. The action of the trustees in making the law school a graduate school follows the course taken a few years ago in the university medical school.

EDUCATION OF DEPENDENT PEOPLES

Alaska.—The system of public schools for the natives of Alaska, under the general supervision of the Commissioner of Education, comprises 77 schools with an enrollment of 3,563 and an average attendance of about 1,800 pupils. The directive and teaching force of the service consists of five superintendents, 109 teachers, and a medical inspection corps comprising 11 physicians, nine nurses and three hospital attendants. The medical and sanitary work is under the supervision of an officer of the Public Health Service on special detail. The recent experiment of appropriating a tract of land for a settlement of natives, removed thus from the evil influences of unprincipled white men, was first tried under an executive order of June 19, 1912, and the necessary business of such a settlement was organized under the supervision of one of the school teachers. This proved so successful that a second reservation was set aside by executive order of April 21, 1913. Much of this land has agricultural value and gardening will be systematically taught. This endeavor is in accord with the work of industrial education begun by the introduction of the reindeer, which in 20 years has become a vast wealth-producing native industry (see also VIII, *Alaska*).

Indians.—From the report of the Commissioner of Indian Affairs it appears that in 1913 the enrollment of pupils in the schools under the Bureau was 25,830, of whom 20,607 were in boarding schools and 5,223 in day schools. Indian children were also enrolled in 45 private schools in which tuition was paid for them and in several hundred public schools. Since 1876 the Government has provided about $80,000,000 for schools among the Indians, but it is estimated that of the 65,000 Indian children of school age there are 10,000 without any school facilities.

Hawaii.—The report of Governor W. W. Frear, for 1912-13, states that the expenditure for public schools current and permanent amounted to $946,541. The public schools numbered 161, with 674 teachers and 25,631 pupils. Private schools numbered 51, with 312 teachers and 7,307 pupils. The College of Agriculture and Mechanic Arts took possession of its new buildings in the suburbs of Honolulu, which with the extensive grounds belonging to the College gives greatly increased facilities for its work. The territorial library was opened in a handsome new building in Honolulu, erected at a cost of $115,514, with an additional expenditure of $11,630 for furniture and fittings. Of the entire amount, Andrew Carnegie contributed $100,000.

Philippine Islands.—The report of the Director of Education in the Philippine Islands shows a decline in the number of elementary schools and in their enrollment. This is attributed to the influence of the native people, who now have larger voice in the Government and who show indifference to popular education with a corresponding interest in intermediate education for a select class. The pupils in public schools numbered 440,050. Only 85 new teachers from the United States were appointed during the year, the policy being to employ Filipino teachers as rapidly as possible. The latter numbered 7,013, of whom 3,522 had finished the course of intermediate schools. The teaching of industrial arts is successfully continued under the charge of 736 teachers. With the exception of 37 secondary schools, industrial training is given in all schools in the Philippines; the number of provincial trade schools increased from five in 1909 to 18 in 1913. The University of the Philippines, authorized by the Philippine Legislature by an act of 1911, is now completely organized and

comprises the medical school, school of fine arts, college of agriculture, colleges of liberal arts and engineering, and college of law.

Panama Canal Zone.—The school system established under the authority of the Canal Zone Government in January, 1906, presumably reached its highest measure in 1913, when there were in operation 16 schools for white children with a net enrollment of 1,369, and 15 schools for colored children with 1,580 pupils. With the exception of the supervising officers and the principal of the high school, the teachers of the white schools were all American white women. The schools for the colored children were taught by colored men from Jamaica, all well trained for the work.

EDUCATIONAL FOUNDATIONS AND ASSOCIATIONS

General Education Board.—This corporation, which was created by act of Congress approved Jan. 12, 1903, has for its object the promotion of education within the United States. The current annual report submitted to the Secretary of the Interior shows that on June 30, 1914, the principal funds belonging without restriction to the Board amounted to $33,939,156.89, invested $18,812,610.69 in bonds and $15,126,546.20 in stocks. The income from the above funds, together with the income from the undisbursed income, including income earned but not received, amounted during the year to $2,417,079.62. The balance of income from previous years as of June 30, 1913, amounting to $5,676,678.01, increased the total to $8,093,757.63.

The following were the appropriations made by the Board for the fiscal year ending June 30, 1914:

Appropriations to medical schools for the support of full-time professorships in clinical departments	$2,270,874
Conditional appropriations to colleges and universities	1,333,000
For professors of secondary education in the southern states whose main work is that of carrying on a propaganda in behalf of public high schools	33,750
To selected schools for negroes	50,000
For farm demonstration work in the states of Maine and New Hampshire	30,167
For rural school agents in the southern states whose main work is in the interest of public rural schools for white children	45,000
For rural school agents in the southern states whose main work is in the interest of public rural schools for negro children	26,702
Other appropriations	24,334
Total	$3,813,827

Against the balance there were unpaid appropriations amounting to $5,843,901.25.

The Carnegie Foundation for the Advancement of Teaching has for its main object the administration of the pension fund committed to its trust. The latest report of the Foundation brings the record of its activities through the fiscal year ending Sept. 30, 1913. During the year its province was extended by the gift of a special fund ($1,250,000) from Mr. Carnegie creating a Division of Educational Enquiry. At the end of the year the total fund held in trust amounted to $15,325,000. The income for the year amounted to $694,195 from the general endowment and $44,300 from the special fund. The report of the pension fund shows that there were in force 315 allowances and 88 widows' pensions, the total distribution for these amounting for the year to $616,470.

Jeanes Fund.—The Anna T. Jeanes Fund, the income to be used for negro rural schools, amounts to $200,000. The income from this fund during the year was $10,594.97. Added to the balance from the previous year the total available income amounted to $18,261.71. Of this $8,998 was appropriated and paid to various schools.

The National Education Association held its fifty-second annual convention at St. Paul July 4-11, 1914. The registration showed an attendance of 6,508, representing every state in the Union. The political and economic bearings of education were emphasized by the prominence given to the Peace movement, and the promotion of international amity by speakers before the general meetings. Of strictly educational subjects, that of equal pay for men and women in the teaching service proved to be of chief interest, and the Association went on record in favor of this principle and declared also

that a larger representation of women in official positions is desirable. Lively interest was shown in the discussion of vocational training both before the general meeting and the sessions of the special department. The association heartily endorsed the plea for national aid for this order of training. In view of the purpose to merge the annual meeting of the association in 1915 into an international congress, unusual importance attaches to the office of president for the coming year. The election of Dr. David Starr Jordan to this office and his acceptance assure the success of the large plans for the International Congress of Education which will convene at Oakland, Cal., Aug. 16-18, 1915.

The American Institute of Instruction held its eighty-third annual meeting at Harvard University, July 1-4, 1914. The organization makes no effort simply to attract numbers, but it exerts great influence on educational thought throughout the country. The meeting at Harvard University was marked by the participation of leaders who have risen out of the medley of new ideas and policies which for a time seemed to threaten the foundations essential to solid progress, whose addresses on elementary, secondary and vocational education made up a complete survey of well defined needs and purposes to which public education must respond.

The Conference for Education in the South held its seventeenth annual meeting in Louisville on April 7. Among special features of the Conference were the exhibit of a country community in the process of self-development, depicted by a series of exhibits and conferences; the conference of country women on problems of home life, rural industries and community service; the first national conference of state supervisors of rural schools; and the meeting of the library department. In the last named the topic of chief interest was the county library movement. The register showed an attendance of 1,929 members, representing 37 states and the District of Columbia.

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LIBRARIES

JAMES I. WYER, JR.

General Survey.—There are a half-dozen distinct currents characteristic of American library work for the past 30 years which are still potent and along which the work is likely to grow for a considerable time. It is impossible to name these in the order of their relative importance, but certainly among the foremost influences which have shaped library history in this country has been the steady stream of individual benevolence which has resulted in buildings, books and endowment. Beginning with the early gifts, notable in their day, from the Astors, Enoch Pratt and George Peabody, private gifts to American libraries have now aggregated a total impossible to compute exactly but certainly approximating $125,000,000. Chief among these donors has, of course, been Andrew Carnegie, whose library gifts now total upward of $50,000,000. These vast sums, significant in themselves, gain an added potency from their effect upon the development of library architecture, their stimulation of professional training for librarianship, the fixing of the principle of tax support for free libraries and the emphasis which they create in the public mind and conscience upon the importance of the library as a social institution.

No single influence has meant more for the achievement of uniformity and economy in methods and administration than the conduct of the Library of Congress under Dr. Herbert Putnam since 1899. Not alone has the concept of the Library of Congress as a truly national library been strengthened through the ideals of its librarian and its acceptance and support by Congress, but in specific methods of service, such as uniform printed catalogue cards, printed reference lists, coöperation with the American Library Association in important publishing enterprises, interlibrary lending of its books, the library has actively coöperated to reduce the cost of administration and promote the highest efficiency of all libraries.

It is within the present generation that children have been welcomed in libraries and that a distinct methodology has been created for serving them. It is impossible to forecast the effect upon fixed habits of reading and study which will certainly be noticeable within the next one or two generations and which must be due, perhaps more than to our schools, to the work of libraries with young children.

As libraries grew and multiplied both through private gifts and public interest and support it became necessary to develop competent librarians. It is not yet 30 years since the first library school was established. Today there are a dozen or more, sending out each year two or three hundred recruits for professional work in all parts of the country.

The American Library Association has of right been a potent factor in its field. More important than the influence seen and felt through its annual meetings, its notable series of publications and the work done in its recently established headquarters office, have been the ideals which it has upheld and the professional *esprit de corps* which it has created. The affiliation of other organizations national in scope and of kindred purpose and a recent membership provision associating state library associations with the parent body achieve a most important and desirable professional solidarity.

No summary of recent history and present tendencies can fail to note the marvelous growth of library work in those ways which are summarized by the term "library extension." Not only has the one or central library in each large city thrown off branches, delivery stations, traveling libraries, and utilized schools, factories, depart-

ment stores, parks, playgrounds, and a host of other agencies, for the distribution of its books, but 34 American states have established a central bureau, board or commission, usually in the state library, which stands in the same relation to the public libraries of the state as the state department of public instruction stands to the free schools. These library commissions are charged with large functions in organization, inspection, instruction, and encouragement of libraries and their librarians. Frequently considerable grants of state money are apportioned and regulated by these commissions. The notable zeal and fine spirit with which this work of library extension uniformly has been prosecuted can hardly be matched in achievement by any similar spiritual or educational movement.

Legislation.—The only library laws of importance enacted during 1914 are in New York, New Jersey and Massachusetts. In New York Chapter 51, Laws of 1914, affected the organization and administration of school libraries in the following ways: by making every school library a free circulating library for all the people of those districts where there is not a free library in operation; by giving increased professional recognition and a definite legal status to the position of school librarian, who heretofore has been classed, appointed and paid only as a teacher, but whose position is now as definitely recognized and provided for as that of school teacher; by making specific provision for the joint employment of the same librarian by the school library and the local public library whenever combining the two positions will make it possible to employ a trained library worker; and by providing for the creation by the school trustees of a separate public library and the transference to this new library of such of the school-library books as are not needed for school use whenever the use of the school library by the general public develops to a degree that embarrasses the school authorities.

Chapter 186, Laws of New Jersey, 1914, amends the school law as follows. The money appropriated by the state for school libraries is to be paid hereafter upon the order of the Public Library Commission instead of upon the order of the state superintendent of public instruction as heretofore. The Library Commission is also to adopt rules for the management and use of these libraries and to direct the manner of selecting books, superseding therein the state Board of Education. The Library Commission may also consolidate and establish in one place the school libraries in any district where such consolidation will advance educational and library interests. A school district is given the new power to appropriate necessary sums for the care and management of libraries established under the act, and the expenses of the Commission in carrying out these provisions are to be paid from public funds. Chapter 29 makes it the duty of the state librarian to collect and organize all information and other material needed for legislative-reference purposes and to this end an appropriation of $1,000 is made.

Chapter 118, Laws of Massachusetts, 1914, establishes the right of library contract between the citizens of one community and any public library in the same or another city or town. This facilitates county and town library extension.

Meetings.—The year 1914 witnessed in the annual meeting of the American Library Association at Washington, May 22-26, the largest attendance (1,366) of any of its 36 similar conferences. Under the presidency of Edwin H. Anderson, director of the New York Public Library, four general sessions were held, with programmes notable for solid content and interest. Several of the topics chosen for consideration, such as the tariff on books, the neglect of national archives, and government aid and coöperation in library extension, were peculiarly appropriate at a meeting in the national capital. An unusually interesting and highly profitable feature of the meeting was the comparative exhibit of the labor-saving devices conceived and brought together by the committee on library administration. The papers and proceedings appear *in extenso* in the *Bulletin* of the Association for July, 1914. The officers for 1914-15 are: president, Hiller C. Wellman, City Library Association, Springfield,

Mass.; vice-presidents, W. N. C. Carlton, Newberry Library, Chicago, and Mary L. Titcomb, Washington County Free Library, Hagerstown, Md.; secretary, George B. Utley, 78 East Washington St., Chicago.

Certain sectional meetings have come to transcend in importance the local club or association standing sponsor for them and to form mid-year rallying ground for large numbers of library workers. Particularly notable during 1914 were the meetings of the League of Library Commissions at Chicago in January, with delegates in attendance from 15 states; the joint meeting of the Pennsylvania and New Jersey Library Associations at Atlantic City in March, with an attendance of close to 200; and the New York Library Association at Cornell University in September, with 160 librarians present from ten states.

New library associations noted during the year are those in the Canadian province of Saskatchewan and in the state of West Virginia.

Library Training.—Due to a change in president and policy at Drexel Institute in Philadelphia, the library school maintained there for over 20 years was discontinued during the year.

As if to keep intact the number of such agencies for training, the California Library School was opened on Jan. 12 at the California State Library with 15 students in charge of a faculty chiefly composed of the members of its staff. California has long sent its young people ambitious for library service to eastern library schools, and the new institution will fill a recognized place for which plans have been perfecting for several years. In the interest of the very desirable high standards of educational preparation for library service, it is gratifying to note that the California school, like its older exemplars in the east, will be placed upon a graduate basis in September, 1915.

Changes in Personnel.—Important appointments of the year are those of William Dawson Johnston, librarian of St. Paul Public Library, in succession to Mrs. Helen J. McCaine, who retires after service of 40 years; John B. Kaiser, librarian of the Tacoma Public Library; and Carl H. Milam, librarian of the new Public Library, Birmingham, Alabama.

William C. Kimball, for 20 years trustee of the Passaic (N. J.) Public Library, instrumental in creating the New Jersey Public Library Commission, and since 1900 its chairman, died on Jan. 17 (*Lib. Jour.*, xxxix, 110, 205). Frank A. Hutchins, a pioneer in library extension in Wisconsin and for six years the first secretary of the Wisconsin Free Library Commission, died at Madison on Jan. 26 (*Public Libraries*, xix, 109). Miss Katharine Lucinda Sharp, formerly director of the University of Illinois library school and for many years prominent in library affairs, died at Lake Placid, N. Y., on June 1.

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XXXIII. CHRONOLOGY AND NECROLOGY

AMERICAN CHRONOLOGY

DECEMBER, 1913[1]

17.—A treaty of peace on the Bryan plan is signed at Washington between the United States and Nicaragua.

The Republican National Committee adopts a new basis of apportionment of delegates to national conventions.

18.—A treaty of peace on the Bryan plan is signed at Washington between the United States and the Netherlands.

19.—The Senate passes the amended Currency bill.

The President signs the Hetch-Hetchy bill, permitting San Francisco to impound a water supply in the Yosemite National Park.

22.—The House accepts the conference report on the Currency bill.

23.—The Senate accepts the conference report on the Currency bill and the bill is signed by the President as the Federal Reserve Act.

Both houses of Congress recess until Jan. 12, 1914.

24.—Seventy-two persons are killed in a fire panic in a hall at Calumet, Mich.

25.—President Wilson arrives at Pass Christian, Miss., for a three weeks' vacation.

JANUARY

2.—President Wilson confers with John Lind on board the cruiser *Chester* off Pass Christian, Miss.

4.—The tank steamer *Oklahoma* sinks off Sandy Hook with a loss of 32 men.

5.—Secretaries McAdoo and Houston, as the Organization Committee of the Federal reserve system, begin a series of hearings at New York.

6.—The U. S. Circuit Court of Appeals at Chicago confirms the sentences of 24 of the members of the Ironworkers' Union convicted of dynamite outrages and grants new trials to six.

7.—The craneboat *Lavalley* makes the first complete passage of the Panama Canal.

9.—Pablo Desvernine, Minister from Cuba to the United States, resigns.

The Massachusetts Supreme Court annuls an order of the Public Service Commission permitting the New Haven Railroad to issue $67,700,000 of bonds.

10.—An agreement is reached between the Government and the New Haven Railroad for the dissolution of the system without litigation.

12.—Both houses of Congress reassemble.

The Catskill Aqueduct under the Hudson River is holed through.

13.—President Wilson returns to Washington.

James M. Curley (Dem.), Representative in Congress from Massachusetts, is elected mayor of Boston.

The Wright aeroplane patents are upheld by the U. S. Circuit Court of Appeals at New York.

15.—The Nicaraguan Congress approves the proposed treaty with the United States on canal rights.

Charles H. Moyer, president, and 37 other officers and members of the Western Federation of Miners are indicted at Houghton, Mich., for conspiracy in connection with the strike of copper miners.

17.—Col. Wm. C. Gorgas is nominated as surgeon-general of the Army.

19.—The Senate confirms the nomination of John Skelton Williams as Comptroller of the Currency.

20.—President Wilson reads his message on anti-trust legislation in joint session of the two houses of Congress.

The Circuit Court at Milwaukee declares unconstitutional the Wisconsin eugenic marriage law.

24.—The Senate passes the Alaskan Railway bill.

26.—President Wilson confers on the Mexican situation with the members of the Senate Committee on Foreign Relations.

27.—President Wilson signs an order creating the new government of the Panama Canal Zone, in effect April 1.

The Senate confirms the nominations of Henry M. Pindell as Ambassador to Russia, and of Winfred T. Denison as Secretary of the Interior of the Philippine Islands.

The House adopts a resolution au-

[1] Through a printer's error the chronology of Dec. 17-31, 1913, was omitted from the last issue of the YEAR BOOK.

thorizing an investigation of the miners' strikes in Michigan and Colorado.

The Interstate Commerce Commission hands down a decision in the tap-line cases.

28.—Henry M. Pindell resigns as Ambassador to Russia.

30.—The Old Dominion liner *Monroe* is struck and sunk by the *Nantucket* off Norfolk, Va., with a loss of 41 lives.

31.—President Wilson nominates Winthrop M. Daniels (N. J.) and Henry C. Hall (Col.) as members of the Interstate Commerce Commission.

FEBRUARY

2.—The House amends the Burnett Immigration bill to exclude all Asiatic immigrants.

3.—The House rescinds its action excluding Asiatic immigrants.

A caucus of the Democratic members of the House rejects a proposal for the creation of a committee on woman suffrage.

President Wilson revokes the order of President Taft placing an embargo on the exportation of arms to Mexico.

4.—The Senate confirms the nomination of Col. George W. Goethals as Governor of the Panama Canal Zone.

The Senate sustains a report of the Committee on Privileges and Elections denying the right of Frank P. Glass of Alabama to be seated.

The House passes the Burnett Immigration bill prescribing a literacy test for immigrants.

A treaty of peace on the Bryan plan is signed at Teheran between the United States and Persia.

5.—Treaties of peace on the Bryan plan are signed by the United States with Denmark and Portugal.

7.—The Senate adopts a resolution directing the Interstate Commerce Commission to make a further investigation of the New Haven Railroad.

The Senate passes the Agricultural Extension bill.

The Board of Food and Drug Inspection in the Department of Agriculture is abolished.

9.—The Senate passes the Fortifications Appropriation Bill.

Colonel Goethals suspends John Burke, manager of the Commissary Department of the Panama Canal, on charges of accepting gratuities.

10.—The Senate passes a bill imposing penalties for impersonation and vilification.

The House passes the Shackleford bill appropriating $25,000,000 annually for Federal aid in road building.

Henry Vollmer (Dem.) is elected to Congress from Iowa, succeeding I. S. Pepper, deceased.

11.—The Government enters a suit at Salt Lake City to dissolve the control of the Southern Pacific over the Central Pacific Railway.

13.—Arbitration treaties between the United States and Costa Rica and the United States and Switzerland are signed at Washington.

17.—An arbitration treaty between the United States and the Dominican Republic is signed at Washington.

18.—The House passes the Alaskan Railway bill.

20.—The House passes the Indian Appropriation bill.

21.—The Senate ratifies conventions renewing treaties of arbitration with eight countries, including Great Britain and Japan.

23.—The U. S. Supreme Court hands down a decision that the Food and Drugs Act does not prohibit the use of injurious substances unless in quantities sufficient to affect health.

24.—The Supreme Court hands down a decision adverse to the Government in the bleached-flour case.

The New York Court of Appeals grants a new trial to Lieut. Charles Becker, of the New York police force, convicted of the murder of Herman Rosenthal, and affirms the conviction of the four actual slayers.

James M. Curley (Dem.) of Massachusetts resigns from the House of Representatives as of Feb. 4.

25.—W. S. West (Dem.) is appointed to the U. S. Senate from Georgia to succeed Augustus O. Bacon, deceased.

26.—Governor Colquitt of Texas telegraphs Secretary of State Bryan for authorization to send an armed force into Mexico to arrest the murderers of Clemente Vergara, an American rancher.

27.—The Senate passes a bill giving effect to the treaty of 1908 with Great Britain for the protection of fisheries in waters adjacent to the United States and Canada.

Secretary of State Bryan demands of President Huerta the punishment of the murderers of Clemente Vergara.

28.—The Senate passes the Post-Office Appropriation bill.

MARCH

2.—The bill giving effect to the fisheries treaty with Great Britain fails to pass the House under suspended rules.

A convention renewing the arbitration treaty between the United States and Paraguay is signed at Washington.

3.—Joseph W. Folk, Solicitor for the Department of State, resigns to become chief counsel to the Interstate Commerce Commission.

4.—John Bassett Moore resigns as counselor for the Department of State.

William Phillips of Boston is nominated Third Assistant Secretary of State.

5.—President Wilson delivers a message to Congress appealing for the repeal of the tolls exemption clause of the Panama Canal Act.

6.—The Sims bill for the repeal of the tolls exemption clause of the Panama Canal Act is favorably reported to the House.

8.—A force of Texans enters Mexico and obtains the body of Clemente Vergara, killed by Federal soldiers.

9.—The U. S. Supreme Court refuses to review the convictions of 24 members of the International Association of Bridge and Structural Iron Workers for dynamite outrages.

11.—President Wilson orders two additional regiments of infantry to the Mexican border.

Wm. P. Malburn of Denver is nominated as Assistant Secretary of the Treasury.

12.—President Wilson signs the bill authorizing the construction of a government railroad in Alaska.

13.—The directors of the United States Express Company decide to wind up its affairs because of the competition of the parcel post.

14.—The House passes the Agricultural Appropriation bill.

17.—James S. Harlan is elected chairman of the Interstate Commerce Commission.

18.—The Government files a suit under the Sherman Act against the Lehigh Valley Railroad Company and its subsidiaries.

19.—The Senate rejects a resolution for the submission of a constitutional amendment granting the suffrage to women.

John Lind, President Wilson's envoy in Mexico, confers at Vera Cruz with the Mexican Foreign Minister, José Portillo y Rojas.

20.—Robert Lansing of Watertown, N. Y., is nominated as counselor, and Cone Johnson of Texas as solicitor, for the Department of State.

21.—The Department of Justice announces that an agreement has been reached for the dissolution of the New Haven Railroad by consent.

23.—The U. S. battleship *Oklahoma* is launched at Camden, N. J.

26.—The House passes the Rivers and Harbors Appropriation bill.

27.—The Senate passes a bill prohibiting future dealings in cotton.

The House adopts a special rule limiting debate on the Panama Canal Tolls Repeal bill.

28.—The Senate passes the Army Appropriation bill.

31.—The House passes the Panama Canal Tolls Repeal bill.

APRIL

1.—The permanent government of the Panama Canal Zone is inaugurated under Col. George W. Goethals as Governor.

Major-Gen. Wm. W. Wotherspoon is appointed Chief of Staff of the Army.

A strike of miners closes practically all the coal mines of Ohio.

2.—The Committee of Organization of the Federal reserve system announces the location and territories of 12 Federal reserve banks.

3.—John Lind, President Wilson's personal envoy in Mexico, leaves Vera Cruz for the United States.

4.—Secretary of the Navy Daniels signs an order effective July 1 prohibiting the use of intoxicants on naval vessels or in naval stations.

7.—The Senate rejects a resolution admitting the public to all sessions except those in which treaties are considered; the Committee on Interoceanic Canals decides to hold hearings on the Panama Canal Tolls Repeal bill.

Spain appeals to Great Britain for protection of Spaniards expelled from their lands in Mexico by General Villa's order; the United States protests against the order to General Carranza.

A treaty between the United States and Colombia, settling the Panama controversy, is signed at Bogota.

James A. Gallivan (Dem.) is elected to Congress from the Twelfth District of Massachusetts, succeeding James M. Curley (Dem.), resigned.

Dow H. Drukker (Rep.) is elected to Congress from the Seventh District of New Jersey, succeeding Robert L. Bremner (Dem.), deceased.

A special election in New York State carries a proposal for a constitutional convention to meet in April, 1915.

The U. S. District Court at Trenton, N. J., dismisses the Government's suit under the Sherman Act against the D., L. & W. Railroad and the D., L. & W. Coal Co.

9.—American bluejackets landing for supplies at Tampico, Mexico, are arrested by Government troops and after a short detention released with an apology; Rear-Admiral Mayo demands further reparation in the form of a salute to the American flag.

12.—President Huerta promises full reparation for the arrest of American bluejackets at Tampico.

13.—The Mexican Government makes conditions for the promised salute of the American flag, which involve a return salute of the Mexican flag.

The striking copper miners in Michi-

gan vote to abandon the strike and return to work.

The four actual murderers of Herman Rosenthal in New York in June, 1912, are executed at Sing Sing.

14.—The Mexican Government refuses to comply unconditionally with the demand for a salute of the American flag; President Wilson orders the North Atlantic fleet to Tampico.

15.—Secretary of the Navy Daniels orders additional ships of the Pacific Fleet to the west coast of Mexico.

16.—President Huerta agrees to salute the American flag; the United States engages to return the salute as a matter of courtesy.

17.—President Huerta demands that the salute of courtesy by American guns be fired simultaneously with the Mexican salute of the American flag.

A new peace treaty on the Bryan plan between the United States and Denmark is signed at Washington.

Michael P. Mahoney attempts the life of John Purroy Mitchel, mayor of New York; Frank L. Polk, corporation counsel, is shot.

18.—President Wilson sends an ultimatum to Huerta giving him until 6 p. m. on the following day to yield to the demands of the United States.

19.—President Huerta refuses to consent to an unconditional salute of the American flag.

20.—President Wilson delivers a message on the Mexican crisis to both houses of Congress assembled in joint session; the House passes a resolution justifying the employment of armed force to enforce the demands of the United States.

The Senate passes the bill providing for the creation of a volunteer army.

A battle between striking coal miners and militia at Ludlow, Col., results in the burning of the miners' tent colony and the loss of many lives.

21.—Vera Cruz is occupied by an American naval force.

22.—The Senate passes an amended resolution authorizing the use of armed force in Mexico, in which the House concurs; General Carranza protests to President Wilson against the occupation of Vera Cruz.

23.—Nelson O'Shaughnessy, American chargé d'affaires at Mexico City, is given his passports and leaves for Vera Cruz; Señor Algara, Mexican chargé d'affaires at Washington, receives his passports; President Wilson restores the embargo on shipment of arms to Mexico, and orders the Fifth Brigade of infantry and a detachment of artillery to Vera Cruz, and additional forces to the Mexican border.

The striking coal miners in Colorado destroy by fire and explosives several large mine plants.

24.—The Fifth Brigade of infantry, under Gen. Frederick Funston, sails from Galveston for Vera Cruz.

25.—The diplomatic representatives of Argentina, Brazil and Chile in the United States offer their good offices for the settlement of the conflict between the United States and Mexico; the United States accepts the offer.

President Wilson signs the Volunteer Army bill.

Governor Ammons of Colorado requests the aid of Federal troops in preserving peace in the miners' strike.

26.—Admiral Fletcher places Vera Cruz under martial law; President Huerta agrees to free Americans held as hostages.

28.—President Wilson orders Federal troops to the strike district in Colorado; Governor Ammons issues a proclamation practically placing the state under martial law.

29.—The Senate Committee on Interoceanic Canals votes to report the Panama Canal Tolls Repeal bill without recommendation, but approves an amendment reserving to the United States all her existing rights.

30.—The American military forces land at Vera Cruz and take over command of the city from the naval forces.

MAY

2.—The A. B. C. mediators invite the United States, President Huerta and General Carranza to appoint envoys to a peace conference.

3.—General Funston establishes military government in Vera Cruz.

4.—The Huerta Government protests to the A. B. C. mediators against the continued landing of American soldiers and military supplies at Vera Cruz.

Governor Ammons convenes the Colorado Legislature in special session to deal with the strike situation.

5.—A treaty of peace on the Bryan plan between the United States and Italy is signed at Washington.

6.—The Clayton Anti-Trust bill is reported to the House; the Senate Committee on Interstate and Foreign Commerce opens hearings on its proposed anti-trust measure.

7.—The House passes the Naval Appropriation bill.

William G. McAdoo, Secretary of the Treasury, and Eleanor Randolph Wilson, the President's youngest daughter, are married at Washington.

9.—Joseph R. Lamar, justice of the Supreme Court, and Frederick W. Lehmann, formerly Solicitor-General, are appointed to represent the United States in the mediation conference.

A convention renewing the treaty of arbitration between the United States and Holland is signed at Washington.

11.—The U. S. Supreme Court dismisses the contempt proceedings against Samuel Gompers, John Mitchell, and Frank Morrison.

Memorial ceremonies for 17 marines killed at Vera Cruz are held at New York.

12.—The Democrats of the House in caucus decide to limit the work of the session to the trust programme and appropriation bills.

The House passes bills raising the U. S. legations to Argentina and Chile to the rank of embassies, and providing for the popular election of U. S. Senators.

13.—A convention renewing the arbitration treaty between the United States and Salvador is signed at Washington.

15.—Arthur Bailly-Blanchard, Secretary of Embassy at Tokio, is nominated Minister to Haiti.

16.—President Wilson telegraphs to Governor Ammons of Colorado urging the legislature to take effective action to deal with the miners' strike; the legislature adjourns *sine die*.

18.—The House passes a bill providing for the creation of a military aviation service in the U. S. Army.

A regular barge service is begun through the Panama Canal.

19.—The House begins debate on the Administration anti-trust bills.

Theodore Roosevelt lands at New York from his exploring expedition to Brazil.

20.—The A. B. C. mediation conference opens at Niagara Falls, Canada.

21.—Mexican Constitutionalist agents in Washington agree to send a representative to the Niagara Falls peace conference.

22.—Charles Becker, New York police lieutenant, is convicted a second time of the murder of Herman Rosenthal.

23.—The Senate passes the Agricultural Appropriation bill.

25.—The U. S. Supreme Court hands down a decision in the tap line cases sustaining the reversal of the decision of the Interstate Commerce Commission.

28.—It is announced that the conferees at Niagara Falls have agreed on a plan for the retirement of President Huerta and the appointment of a temporary commission government to restore order.

29.—The A. B. C. mediators receive a request from General Carranza for representation in the peace conference.

It is reported from St. Michael, Alaska, that Vilhjalmar Stefansson's ship *Karluk* was crushed in the ice and sunk near Herald Island, Siberia, on Jan. 16.

31.—General Huerta cables to the peace conference his counter proposals for the settlement of the Mexican difficulty.

JUNE

1.—The House adopts amendments to the Clayton Anti-Trust bill exempting labor and farmers' organizations from the operation of the Sherman Act, and declaring peaceable strikes, boycotts and picketing by labor unions not unlawful.

2.—The A. B. C. mediators reply to the note of General Carranza inviting his representatives to participation in the peace conference; the Mexican Government accepts in principle the proposed plan of pacification.

Boaz W. Long is nominated as Minister to Salvador.

5.—The House passes the three anti-trust bills of the Administration's programme.

8.—J. Harry Covington, Representative from Maryland, is nominated as chief justice of the Supreme Court of the District of Columbia.

The Supreme Court hands down decisions in the Shreveport rate case and the Missouri and Kentucky Harvester Trust cases.

The first passage of the Gatun locks by an ocean steamship is made by the *Allianca*, of the Panama Railroad fleet.

10.—The Senate passes an amendment to the Panama Tolls Repeal bill reserving all rights of exemption under the Hay-Pauncefote treaty.

11.—The Senate passes the Panama Tolls Repeal bill.

The peace conferees at Niagara Falls announce an agreement on the transfer of authority and the establishment of a new government in Mexico.

General Carranza informs the A. B. C. mediators that he will appoint representatives to the peace conference.

12.—The House concurs in the Senate amendments to the Tolls Repeal bill.

William G. Sharp, Representative from Ohio, is nominated as Ambassador to France.

The strike of coal miners in West Virginia is compromised, the men waiving recognition of the union.

13.—Serious rioting between members of the Industrial Workers of the World and the Western Federation of Miners occurs in Butte.

15.—President Wilson signs the Panama Tolls Repeal bill.

President Wilson sends to the Senate the nominations of the five appointive members of the Federal Reserve Board.

16.—The American delegates to the peace conference hold an unsuccessful conference with representatives of General Carranza at Buffalo.

Johnson N. Camden (Dem.) is ap-

pointed U. S. Senator from Kentucky, succeeding W. O. Bradley (Rep.), deceased.

19.—The House unseats Leonidas C. Dyer (Rep.), Representative from Missouri, and seats Michael Gill (Dem.).

22.—The House adopts an amendment to the Sundry Civil Appropriation bill exempting labor unions and farmers' organizations from prosecution under the anti-trust law.

An agreement is reached for the admission of representatives of General Carranza to the peace conference.

The Supreme Court hands down decisions in the intermountain rate case, the pipe line case, and the Southern Pacific oil lands case.

23.—The House concurs in a Senate amendment to the Naval Appropriation bill authorizing the sale to Greece of the battleships *Idaho* and *Mississippi*.

24.—Protocols of agreements reached between the American and Mexican delegates to the peace conference are formally signed.

The Senate passes the Indian Appropriation bill.

The House passes the Sundry Civil Appropriation bill.

President Wilson commutes the sentences of four of the members of the Ironworkers Union convicted of dynamite outrages.

25.—A fire at Salem, Mass., causes immense destruction of property.

26.—George Fred Williams, U. S. Minister to Greece, issues a statement criticizing the conduct of affairs in Albania.

The U. S. gunboat *Machias* intervenes forcibly to prevent the bombardment of Puerto Plata, Dominican Republic.

29.—The House passes a bill to regulate dealings in cotton futures.

Theodore Roosevelt resigns as contributing editor of the *Outlook*.

30.—The United States Express Company discontinues its business.

Theodore Roosevelt assails the Democratic Administration in a speech before the Progressive League of Pittsburgh.

JULY

1.—The Senate Democrats agree in caucus to remain in session until the Administration trust programme is disposed of.

The mediation conference at Niagara Falls is ended.

George T. Marye of California is nominated as Ambassador to Russia.

Secretary Daniels' order prohibiting the use of intoxicants on naval vessels goes into effect.

3.—Secretary Bryan demands the immediate resignation of George Fred Williams, U. S. Minister to Greece, for indiscreet utterances on the situation in Albania.

4.—Four anarchists, leaders of the I. W. W., are killed by the explosion of a bomb in their apartment in New York City.

6.—Ira N. Morris of Chicago is nominated as Minister to Sweden.

George Fred Williams resigns as Minister to Greece.

7.—Paul M. Warburg, appointed to the Federal Reserve Board, declines to appear for interrogation before the Senate Banking and Currency Committee.

9.—The Senate Committee on Banking and Currency votes adversely on the nomination of Thomas D. Jones to the Federal Reserve Board.

12.—Horace Harmon Lurton, associate justice of the U. S. Supreme Court, dies at Atlantic City.

13.—The Interstate Commerce Commission reports to the Senate on its investigation of the New Haven Railroad.

14.—The House passes the Legislative, Executive and Judicial Appropriation bill.

An arbitration treaty between the United States and Peru is signed at Lima.

17.—A suit by stockholders of the New Haven Railroad to recover alleged losses of $102,000,000 from the directors in 1904 to 1909 is filed at Boston.

A threatened strike of engineers and firemen on 98 western railroads is averted by the acceptance of mediation by the Federal Board of Mediation and Conciliation.

20.—Conferences between Attorney-General McReynolds and representatives of the directors of the New Haven Railroad end without reaching an agreement to avoid prosecution.

21.—James T. McDermott (Dem.), Representative in Congress from Illinois, resigns in anticipation of censure.

President Wilson orders a suit to dissolve the New Haven Railroad system and the presentation of the criminal aspects of the case to a grand jury.

22.—The Senate Committee on the Judiciary reports the Clayton Anti-Trust bill.

Wm. G. Sharp (Dem.), representative in Congress from Ohio, resigns.

23.—President Wilson withdraws the nomination of Thomas D. Jones to the Federal Reserve Board.

The Government brings suit in the District Court at New York to compel the dissolution of the New Haven Railroad system.

24.—Treaties of peace on the Bryan plan are signed at Washington between the United States and Argentina, Brazil and Chile.

President Wilson sends to the Senate

peace treaties arranged by Secretary Bryan with 20 nations.

26.—Secretary of the Treasury McAdoo announces that the Government will make deposits of $34,000,000 to assist in moving the crops.

28.—The North German Lloyd liner *Kronprinzessin Cecilie* sails from New York for Europe with $10,600,000 in gold.

29.—The Cape Cod Canal between Barnstable Bay and Buzzards Bay is formally opened.

31.—The Senate passes an amendment to the Federal Reserve Act to extend the facilities for the issue of emergency currency.

The New York Stock Exchange and most of the other stock exchanges, and the New York and New Orleans cotton exchanges, are closed.

AUGUST

1.—The Interstate Commerce Commission hands down its decision in the advance rate case.

3.—Both houses of Congress pass a bill appropriating $250,000 for the assistance of American tourists in Europe.

The Senate passes a bill authorizing the use of naval vessels for the transportation of mail, passengers and freight.

The House passes a bill relaxing the limitations on the admission of foreign-built ships to American registry.

The House passes the bill providing for the issue of emergency currency.

The representatives of the western railroads agree to submit to arbitration the dispute with their firemen and engineers.

4.—President Wilson issues a proclamation of neutrality of the United States.

President Wilson signs the bill providing for the issue of emergency currency.

Garrett A. Droppers, professor of economics in Williams College, is nominated as Minister to Greece.

The North German Lloyd steamer *Kronprinzessin Cecilie* returns to Bar Harbor, Me.

5.—President Wilson tenders to the belligerents his good offices toward a settlement of the European War.

President Wilson issues an order prohibiting wireless stations from handling unneutral messages.

The Senate passes the Trade Commission bill.

Both houses of Congress pass a bill appropriating $2,500,000 for the relief of American tourists in Europe.

A treaty is signed at Washington between the United States and Nicaragua providing for the payment to Nicaragua of $3,000,000 in consideration of perpetual rights to an interoceanic canal and naval bases in the Gulf of Fonseca.

6.—The U. S. cruiser *Tennessee* sails for Europe with $5,867,000 in gold for the relief of American tourists.

Mrs. Woodrow Wilson, wife of the President, dies in the White House.

7.—The Senate confirms the appointments of Paul M. Warburg and Frederic Delano to the Federal Reserve Board.

10.—The five appointive members of the Federal Reserve Board take the oath of office; Charles S. Hamlin is designated governor.

President Wilson despatches a commission with a plan for the restoration of peace in the Dominican Republic.

11.—The Senate amends and passes the bill relaxing the prohibitions against the admission of foreign-built ships to American registry.

12.—The U. S. District Court at St. Paul hands down a decision ordering the dissolution of the International Harvester Company.

It is announced that the Government has agreed with the New Haven Railroad on a method of dissolution.

13.—President Wilson instructs the Attorney-General to investigate a sudden rise in the price of foods.

The Senate ratifies 18 peace treaties with foreign powers.

14.—Five hundred American sailors are landed at Bluefields, Nicaragua, to preserve order.

15.—The steamer *Ancon* makes the official passage opening the Panama Canal.

Secretary of State Bryan issues a statement discouraging loans to belligerents by American bankers.

17.—The Senate passes the Ship Registry bill as passed by the House.

18.—President Wilson issues an address to the American people appealing for impartiality and restraint in discussing the European War.

19.—President Wilson nominates Attorney-General McReynolds as justice of the Supreme Court, and Thomas Watt Gregory as Attorney-General.

21.—The Senate passes a bill providing for government insurance of vessels and cargoes against loss by war.

The United States defines to Japan its attitude on the Japanese ultimatum to Germany.

22.—Great Britain protests to the United States against the clearance of German ships suspected of coaling war vessels on the high seas.

24.—The Senate passes a bill providing for Federal licenses for cotton and other warehouses.

25.—The House, to obtain a quorum, revokes all leaves of absence and au-

thorizes deductions from the salaries of absentees.

27.—The House passes the Alexander Seamen's bill.

29.—The House passes the bill creating a war-risk marine-insurance fund.

The Senate confirms the nominations of Attorney-General McReynolds as justice of the Supreme Court, and Thomas W. Gregory as Attorney-General.

SEPTEMBER

2.—The Senate passes the Clayton Anti-Trust bill.

A treaty between the United States and Panama is signed at Panama, giving the United States control of the waters of Colon and Ancon.

3.—James C. McReynolds is sworn in as associate justice of the Supreme Court, and Thomas W. Gregory as Attorney-General.

The Government relaxes the regulations for wireless messages.

The Bureau of War Risk Insurance in the Treasury Department is organized under William C. DeLanoy.

4.—President Wilson delivers a message to Congress urging emergency revenue legislation.

The President signs an order suspending the navigation laws relating to registry.

Emperor William of Germany sends a message to President Wilson protesting against alleged violation of the rules of war by the Allies.

5.—The House passes the Alaska Coal-Lands Leasing bill.

The President issues an executive order providing for Government operation of wireless stations.

7.—President Wilson submits to the mine operators and strikers a plan for the settlement of the Colorado strike.

A rescue party from Nome finds eight members of the Stefansson Arctic expedition alive on Wrangel Island.

8.—The Senate agrees to the conference report on the Federal Trade Commission bill.

President Wilson issues a proclamation setting Oct. 4 as a special day of prayer for peace.

9.—Representatives of the leading railroad systems confer with President Wilson on the state of railroad finance.

10.—The House agrees to the conference report on the Federal Trade Commission bill.

President Wilson publishes an open letter to Frank Trumbull emphasizing the needs of the railroads.

11.—The Senate passes a bill to amend the provisions of the Federal Reserve Act on the issue of emergency currency against commercial paper.

Secretary Bryan requests Rustem Bey, the Turkish Ambassador, to discontinue newspaper comments on subjects of domestic concern to the United States.

President Poincaré of France sends a message to President Wilson denying the allegations of the German Emperor and renewing charges of violation of the rules of war against Germany.

13.—The Red Cross steamship *Red Cross,* formerly the Hamburg-American liner *Hamburg,* sails from New York.

14.—State elections in Maine result in the election of Oakley C. Curtis (Dem.) as Governor.

State elections in Arkansas result in the reëlection of George W. Hays (Dem.) as Governor.

15.—The Democratic members of the House of Representatives agree in caucus on a war revenue measure.

President Wilson orders the withdrawal of American troops from Vera Cruz.

Peace treaties negotiated by Secretary Bryan are signed at Washington with Great Britain, France, Spain and China.

The eastern railroads petition the Interstate Commerce Commission for permission to increase freight rates by five per cent.

The United Mine Workers of America accept President Wilson's proposed settlement of the Colorado strike.

16.—President Wilson replies to the message of the German Emperor, declining to express an opinion on the charges of violation of the rules of war; he gives the same answer in person to a Belgian commission sent to protest against German atrocities.

The United States joins the protest of the powers against the abrogation of the Turkish capitulations.

18.—General Funston advises the War Department to postpone the withdrawal of American troops from Vera Cruz.

19.—The Interstate Commerce Commission orders the reopening of the advance rate case.

21.—The Senate recommits the Rivers and Harbors Appropriation bill to committee with instructions to report a measure appropriating a maximum of $20,000,000.

The War Tax Revenue bill is introduced in the House.

22.—The Senate passes a substitute Rivers and Harbors Appropriation bill.

23.—Forty-eight operators of Colorado coal mines reject President Wilson's plan for a truce in the labor war; the President refuses to allow any modification of his proposal.

24.—Frederick J. Stimson, professor of comparative legislation in Harvard University, is nominated as Ambassa-

dor to Argentina, and Henry Prather Fletcher as Ambassador to Chile.

The American hospital ship *Red Cross* reaches Falmouth, England.

25.—The Senate ratifies the peace treaties with Great Britain, France and Spain.

The House passes the War Revenue bill.

The Marconi wireless station at Siasconset, Mass., is closed by order of the President.

26.—President Wilson signs the Federal Trade Commission bill.

The Senate passes the Alaska Coal-Lands Leasing bill.

28.—The Bureau of War Risk Insurance in the Treasury Department is opened for business.

29.—The House passes the Senate's substitute Rivers and Harbors Appropriation bill.

Walter I. McCoy, Representative from New Jersey, is nominated as justice of the Supreme Court of the District of Columbia.

A special Federal grand jury at New York begins an investigation of the financing of the New Haven Railroad.

30.—Secretary of the Treasury McAdoo recalls Government deposits from banks accused of hoarding cash.

OCTOBER

1.—A treaty of peace on the Bryan plan between the United States and Russia is signed at Washington.

Agreements between the United States and Great Britain and Great Britain and Holland by which American goods may be shipped to Holland but not reshipped to Germany are announced.

3.—The Turkish Ambassador, A. Rustem Bey, leaves Washington under official displeasure for published criticisms of American affairs.

4.—The day of prayer for peace in Europe proclaimed by President Wilson is observed throughout the United States.

5.—The Senate adopts the conference report on the Clayton Anti-Trust bill.

6.—The Democrats in the Senate hold a caucus on the War Revenue bill.

The New Haven Railroad Company brings suit against John L. Billard, Charles S. Mellen, and five other directors of the Billard Company to recover $3,828,147 for alleged fraud in the sale of the Boston & Maine Railroad.

8.—The House adopts the conference report on the Clayton Anti-Trust bill.

13.—The U. S. District Court at New York dismisses all but one of the Government's contentions in its suit to dissolve the Atlantic steamship combine.

14.—The House passes the Jones bill promising ultimate independence to the Philippines.

A conference of bankers at New York agrees upon a plan for raising a fund of $150,000,000 to be loaned to cotton producers on warehouse receipts.

15.—The House passes the Alaska Coal-Lands Leasing Bill; the President signs the Clayton Anti-Trust bill.

A landslide in Culebra Cut blocks traffic through the Panama Canal.

The United Fruit Co. SS. *Metapan* is sunk in collision with the Hawaiian-American liner *Iowan* at the entrance to Ambrose Channel, New York.

17.—The Senate passes the War Revenue bill.

A decree terminating the Government's suit against the New Haven Railroad on the basis of an agreed settlement is filed in the Federal District Court at New York.

20.—President Wilson signs the Alaskan Coal-Lands Leasing bill.

The Senate ratifies peace treaties with Greece and Ecuador.

The Panama Canal is again opened for traffic.

21.—The House rejects a plan proposed by Democratic representatives from the South for the issue of $250,000,000 of emergency currency for the relief of cotton producers.

22.—President Wilson signs the War Revenue bill.

23.—The United States protests to Great Britain against the seizure of the Standard Oil Co. tank steamer *Platuria.*

24.—The second session of the Sixty-third Congress is adjourned.

25.—The chairman of the Republican National Committee announces the ratification on the proposed new apportionment of delegates to the national convention.

26.—Great Britain assures the United States that cotton will not be considered contraband of war and explains the seizure of oil-carrying vessels.

31.—The Panama Canal is again closed to traffic by a landslide in Culebra Cut.

NOVEMBER

1.—The Rockefeller Foundation announces the use of its endowment for the relief of destitute non-combatants in Europe.

2.—A Federal grand jury at New York indicts 21 directors of the New Haven Railroad for conspiracy in restraint of trade.

3.—Congressional elections throughout the United States result in large Republican gains.

President Wilson orders Federal troops to Fort Smith, Ark., to enforce

an order of the U. S. District Court in a coal strike.

6.—President Wilson issues a proclamation of neutrality in the war between Turkey and the Allies.

The Chicago stock yards are closed for disinfection against the foot-and-mouth disease.

10.—The seventh Conference of Governors is opened at Madison, Wis.

Brig.-Gen. Hugh L. Scott is appointed Chief of Staff of the U. S. Army.

14.—Sweden ratifies the peace treaty with the United States.

16.—The Federal reserve system is inaugurated by the opening of the 12 reserve banks.

The New York and New Orleans cotton exchanges are reopened.

The Turkish forts at Smyrna fire upon a boat of the U. S. S. *Tennessee.*

17.—Work on the New York subway construction is halted by the demand of labor unions that the New York law restricting employment on public work to American citizens be enforced.

18.—The United States demands of Turkey an explanation of the firing on the *Tennessee's* boat at Smyrna.

21.—The United States receives an explanation from Turkey that the firing on the *Tennessee's* boat at Smyrna was a warning against submarine mines.

23.—The American troops evacuate Vera Cruz; the city is occupied by Gen. Candido Aguilar, loyal to Carranza.

The Chicago Stock Exchange is reopened.

29.—President Wilson names a commission of three members to adjust future differences between coal miners and mine operators in Colorado.

30.—The arbitration of the dispute between the western railroads and their engineers and firemen opens at Chicago.

DECEMBER

2.—The national committee of the Progressive party in conference at Chicago decides to continue the party organization.

4.—Wm. G. Sharp, American Ambassador to France, presents his credentials to President Poincaré.

6.—Great Britain submits to the United States proofs that American shippers are smuggling contraband of war to her enemies and offers proposed regulations for the examination of export cargoes.

7.—The third session of the Sixty-third Congress is opened.

Secretary Bryan announces the conclusion of an agreement with Great Britain to facilitate shipments of cotton.

Secretary Bryan announces that Charles M. Schwab has abandoned a $50,000,000 contract for the construction of submarines for one of the belligerents.

8.—President Wilson delivers his annual message in joint session of both houses of Congress.

Three batteries of field artillery are ordered to Naco, Ariz., where intermittent firing across the border by Mexican revolutionists has caused many casualties.

President Wilson orders an investigation of charges of misconduct in office against James M. Sullivan, U. S. Minister to the Dominican Republic.

Panama ratifies the boundary convention with the United States, giving the latter control of the waters of Colon and Ancon.

The striking coal miners of Colorado vote unanimously to terminate the strike.

12.—Colonel Goethals requests the service of two destroyers to prevent violations of neutrality in Canal Zone waters.

It is announced that Turkey has agreed to treat American institutions in Turkey as foreign institutions are treated in the United States.

General Carranza replies to a note of the United States threatening forcible action to end firing across the border at Naco, Ariz., that the employment of force for this purpose will be considered an unfriendly act.

The New York Stock Exchange is reopened for limited trading in stocks.

15.—Three thousand additional troops are ordered to Naco, Ariz.

The New York Stock Exchange resumes trading in all stocks.

16.—The Senate amends and ratifies the London Convention on Safety at Sea.

The cruiser *Tacoma* is ordered from Santo Domingo to the Canal Zone to assist in the preservation of neutrality.

18.—The Interstate Commerce Commission grants the five per cent. increase in freight rates requested by the eastern railroads.

21.—The U. S. District Court at New York dismisses the Government's suit under the Sherman Act against the Lehigh Valley Railroad Co.

The U. S. Supreme Court hands down a decision that Harry K. Thaw must be brought back to New York from New Hampshire to stand trial for conspiring to escape from Matteawan Asylum.

22.—The House defeats a proposed amendment to the Federal Constitution establishing national prohibition.

24.—A small, organized insurrection occurs in the Navotas suburb of Manila, P. I.

28.—Germany presents a note to the United States regarding the status of American consuls in Belgium.

Justice Lamar of the U. S. Supreme Court grants Leo M. Frank an appeal for a writ of habeas corpus to the Supreme Court.

Canadian soldiers kill two American duck hunters on the Canadian side of the Niagara River.

29.—The United States protests to Great Britain against the hampering of American commerce by British naval policy toward neutral shipping.

30.—Part of the Federal troops in Colorado are ordered withdrawn.

31.—The Senate rejects an amendment to the Immigration bill eliminating the literacy test.

FOREIGN CHRONOLOGY[1]

JANUARY

3.—Enver Bey is appointed Minister of War of Turkey.

8.—A strike is declared by the employees of the government railroads in South Africa.

10.—A court-martial at Strassburg, Germany, acquits the army officers on trial for oppression at Zabern, Alsace.

The Constitutionalists under General Villa capture the town of Ojinaga, Mexico; several hundred Federals surrender to the U. S. troops at Presidio, Texas.

11.—The Chinese Parliament is dissolved by proclamation.

Volcanic eruptions on the islands of Kiuspiu and Sakura, Japan, cause the loss of many lives.

13.—The Mexican Government announces the suspension of interest payments on internal and external debts.

A general strike is proclaimed in South Africa by the Trades Federation.

14.—The Mexican Government proclaims an extension of the bank holidays to March 1.

15.—Adolfo de la Lama, Mexican Minister of Finance, resigns.

16.—The British submarine A-7 is lost off Plymouth, England.

19.—The International Conference on Safety at Sea at London ends with the signature of a convention by the delegates of 15 nations.

21.—The general strike in South Africa is ended by the Federation of Trades.

27.—Premier Costa, of Portugal, and his Cabinet resign.

President Oreste of Haiti takes refuge from the revolutionists on board a German warship at Port-au-Prince; bluejackets are landed from the U. S. cruiser *Montana* to protect the lives and property of foreigners in the capital.

Nine labor leaders involved in the recent strike are deported from South Africa.

28.—The Governor-General of Alsace, Count Charles von Wedel, and the Ministry resign.

29.—The Chinese Administrative Council passes a bill prescribing the worship of Heaven and of Confucius.

30.—The South African Parliament is opened.

FEBRUARY

3.—Yuan Shih-kai issues a mandate dissolving the Chinese district councils.

4.—Guillermo Billinghurst, President of Peru, is forced to resign by military revolutionists under Colonel Benavides.

5.—The seaport of Mazatlan, Mexico, is captured by the Constitutionalists.

6.—Thirty thousand Swedish peasants urge the King to increase the army and navy.

8.—Bernardino Machado forms a Ministry in Portugal.

Oreste Zamor is elected President of Haiti.

Jose Vicente Concha is elected President of Colombia.

10.—The British Parliament is opened in new session; King George pleads for a settlement of the Irish question.

Karl Albert Staaf, Premier of Sweden, and his Cabinet resign.

A resolution of want of confidence in the Ministry, as a result of scandals concerning the purchase of armaments, is rejected in the Japanese Diet.

11.—Vladimir Kokovtzoff, Premier of Russia, resigns.

12.—The revolutionary government of Peru is formally recognized by the United States.

14.—Blas Vidal is elected President of Uruguay.

16.—Knut H. L. Hammarskjoeld becomes Premier of Sweden and forms a Cabinet.

17.—Wm. S. Benton, a British rancher in Mexico, is killed by the Constitutionalists.

21.—Prince William of Wied at Neuwied formally accepts the tender of the throne of Albania.

22.—Great Britain requests the United States to investigate the killing of Wm. S. Benton.

23.—Sir Edward Grey announces in the British House of Commons that Great Britain will not intervene in Mexico to secure reparation for the killing of Wm. S. Benton.

[1] The chronology of the European War is separately recorded, following this section.

24.—General Villa refuses to allow the relatives of Wm. S. Benton to have possession of his body.

26.—The Antarctic expedition under Dr. Douglas Mawson returns to Adelaide, Australia.

28.—General Carranza declines to recognize the right of the United States to inquire into the killing of Benton.

MARCH

2.—Lord Roberts, Rudyard Kipling, and other prominent Englishmen issue an appeal for a pledge of opposition to any act granting home rule to Ireland not submitted to the electorate.

3.—General Carranza appoints a commission to investigate the killing of Wm. S. Benton.

Sir Edward Grey defines in the House of Commons the position of the British Government on the killing of Wm. S. Benton.

The Swedish Parliament is dissolved.

5.—The Home Rule bill is introduced a third time in the British House of Commons.

8.—A general election is held in Spain, resulting in the return of the Government.

Premier Giolitti of Italy and his Cabinet resign.

9.—Premier Asquith announces the Government's proposals for a settlement of the Irish question.

A general strike begins in Rome.

11.—General Carranza agrees to recognize the right of the United States to act for other powers for the protection of their nationals in Mexico.

Government troops in Ecuador recapture the city of Esmeraldas, occupied by revolutionists for six months.

13.—The Japanese House of Peers reduces from $60,000,000 to $45,000,000 the appropriation for naval construction.

14.—A final treaty of peace between Turkey and Servia is signed at Constantinople.

16.—Mme. Joseph Caillaux, wife of the French Finance Minister, shoots and kills Gaston Calmette, editor of *Figaro*, for attacks on her husband.

17.—Joseph Caillaux resigns as Minister of Finance and the French Cabinet is reorganized.

Signor Salandra becomes Premier of Italy and forms a Cabinet.

18.—A convention for the drafting of a permanent constitution for China assembles at Peking.

19.—Elections to the Provincial Council of the Transvaal result in a victory for the Labor party.

Ernest Monis resigns the portfolio of Marine in the French Cabinet.

20.—Many officers of British regiments in Ireland, objecting to service in Ulster, resign.

Armand E. Gauthier succeeds Ernest Monis as Minister of Marine in the French Cabinet.

23.—The Emperor of Japan suspends the Diet, deadlocked over the naval appropriation bill.

24.—Premier Yamamoto of Japan and his Cabinet resign.

25.—Colonel Seely, Secretary of State for War in the British Cabinet, resigns.

26.—Sir John French, Chief of Staff of the British Army, and Sir John Spencer Ewart, Adjutant-General, resign.

Roberto E. Legnia, Vice-President of Peru, resigns as acting President.

28.—The Danish Senate declines to ratify the obligatory arbitration treaty with the United States.

30.—Premier Asquith, of Great Britain, accepts the resignation of Colonel Seely, Secretary of State for War, assumes the portfolio himself, and resigns his seat to seek reëlection.

The Emperor of Japan orders Viscount Keigo Kiyoura to form a Cabinet.

APRIL

1.—The Mexican Congress is opened by President Huerta.

2.—The Constitutionalists under General Villa capture the city of Torreon.

3.—The southern Constitutionalist chiefs in session at Mexico City reject the resignation of General Carranza and ask him to retain supreme power.

5.—A special commission appointed by General Carranza reports that Wm. S. Benton was killed in a private quarrel by a member of General Villa's staff.

Premier Salandra of Italy secures a vote of confidence in the Chamber of Deputies.

6.—General Villa issues an order expelling Spaniards from Mexican territory acquired by the Constitutionalists.

8.—The Mexican Constitutionalists begin an attack on Tampico.

Premier Asquith is returned to Parliament unopposed from his constituency of East Fife.

11.—Italy informs Turkey that she will retain possession of certain of the Ægean islands unless compensated by concessions in Asia Minor.

14.—The Mexican Constitutionalists under General Villa capture San Pedro de las Colonias, near Torreon.

15.—President Huerta submits the demands of the United States to the Mexican Senate.

Count Okuma completes a new Cabinet in Japan.

19.—Gen. V. Marquez Bustillos is chosen Provisional President of Venezuela.

20.—President Huerta guarantees protection to Americans and other foreigners in Mexico.

21.—King George and Queen Mary of England visit Paris as the guests of the French Government.

23.—General Villa issues a statement affirming his friendship for the United States.

24.—The Constitutionalists capture the city of Monterey, Mexico.

Mexican government troops fire the town of Nuevo Laredo; several Mexican soldiers are killed by American troops in an attempt to destroy the bridges over the Rio Grande at Laredo, Tex.

25.—Austria-Hungary prohibits emigration of men under 34 who have not performed full military service.

26.—An election for members of the Chamber of Deputies is held in France.

27.—President Huerta accepts the tender of good offices of Brazil, Argentina and Chile.

28.—General Villa persuades General Carranza not to oppose the occupation by the United States of Mexican territory under the control of Huerta.

29.—General Carranza accepts the tender of good offices of Argentina, Brazil and Chile.

MAY

1.—José Portillo y Rojas, Mexican Foreign Minister, resigns.

The amended constitution of China is promulgated by Yuan Shih-kai.

2.—Yuan Shih-kai, President of China, appoints a new Cabinet.

Alfredo Gonzalez is elected President of Costa Rica by the Congress.

3.—General Carranza consents to be represented in a peace conference but refuses to agree to an armistice.

4.—David Lloyd George submits his sixth budget to the British House of Commons.

6.—President Huerta appoints Emilio Rabasa, Agustin Rodriguez and Luis Elguero as representatives in the A. B. C. mediation conference.

The British House of Lords rejects a bill extending the parliamentary suffrage to women who vote in municipal elections.

Haiti yields to the demand of Great Britain for immediate payment of a claim of $62,000 awarded a British subject by a court of arbitration.

8.—Earthquakes on the east coast of Sicily cause much damage and loss of life.

10.—Final ballots are cast in the elections to the French Chamber of Deputies; the Socialists make important gains.

12.—Premier Asquith promises in the British House of Commons to introduce a bill amending the Home Rule bill.

13.—Tampico is occupied by the Mexican Constitutionalists.

The Privy Council of Japan ratifies a convention renewing the arbitration treaty with the United States.

14.—The Russian Duma rejects the budget.

15.—Oscar Benavides is elected Provisional President of Peru.

16.—Dutch marines are landed at Tampico, Mexico, to protect the oil properties of subjects of the Netherlands.

18.—José Maria Lozano, Mexican Minister of Communications, resigns.

Essad Pasha resigns as Albanian Minister of War and leads a revolt against Prince William.

19.—The British House of Commons passes a third time the Welsh Disestablishment bill.

20.—The Mexican Constitutionalists occupy Saltillo.

21.—Fifty-seven militant suffragists are arrested in London in an attempt to force an entrance into Buckingham Palace to present a petition to King George.

23.—The Japanese Government announces the ratification of the arbitration treaty with the United States.

Albanian insurgents attack Durazzo; Prince William takes refuge on an Italian cruiser, returning later to the city.

25.—The Irish Home Rule bill is passed a third time in the British House of Commons.

26.—The Hamburg-American liner *Ypiranga* delivers a cargo of arms and ammunition to the Huerta forces at Puerto Mexico.

29.—The Canadian Pacific liner *Empress of Ireland* is sunk in collision with the collier *Storstad* off Father Point, Quebec, with a loss of 1,027 lives.

JUNE

2.—Argentina raises its legation at Washington to the rank of an embassy.

Gaston Doumergue, Premier of France, and his Cabinet resign.

3.—Premier Pashitch of Servia and his Cabinet resign.

8.—The Mexican Government rescinds an order for a blockade of the port of Tampico.

The Central Labor Exchange of Italy orders a general strike.

9.—The Colombian Congress ratifies the treaty with the United States.

Alexandre Ribot accepts the Premiership of France and completes a Cabinet.

10.—The general strike in Italy is officially ended by the strike leaders but is renewed by the Socialist party.

12.—The French Chamber of Deputies rejects a vote of confidence in the Ministry and M. Ribot and his Cabinet resign.

Greece presents a note to Turkey

demanding the cessation of persecution of Greeks in Turkish territory.

13.—René Viviani accepts the Premiership of France and completes a Cabinet.

Greece formally announces the annexation of Chios and Mitylene.

15.—The British House of Commons passes the Plural Voting bill a second time.

16.—Adherents of Francisco Villa seize Constitutionalist headquarters in several cities and expel the representatives of General Carranza.

The French Chamber of Deputies passes a vote of confidence in the Viviani Ministry.

18.—Turkey returns a conciliatory reply to the Greek note of protest against the persecution of Greek Christians.

19.—The French Chamber of Deputies authorizes the issue of a loan of 1,800,000,000 francs.

22.—The Mexican Congress convenes in extra session.

23.—The Government's bill to amend the Irish Home Rule bill is introduced in the British House of Lords.

The Constitutionalists capture the town of Zacatecas, Mexico.

24.—King Peter of Servia appoints the Crown Prince Alexander as regent.

The reconstructed Kiel Canal is formally opened by the German Emperor.

28.—Archduke Franz Ferdinand of Austria and his wife, Duchess of Hohenberg, are shot and killed at Sarajevo, Bosnia.

JULY

2.—The French Senate approves a tax on incomes from foreign securities.

5.—A presidential and congressional election is held in Mexico, resulting in the return of the Huerta Government.

Elections to the Panama Assembly result in the return of the Government.

8.—The result of the peace conference at Niagara Falls is reported to the Mexican Congress, with an announcement of Huerta's willingness to resign.

9.—Guadalajara, Mexico, is captured by Constitutionalist forces.

10.—Francisco Carbajal is appointed Mexican Minister of Foreign Relations in President Huerta's new Cabinet.

The first formal meeting of the Ulster Provisional Government at Belfast empowers Sir Edward Carson to take all necessary steps to enforce opposition to Home Rule.

Elections to the Danish Upper House assure the amendment of the Constitution on a democratic basis.

11.—The Mexican Senate approves the Niagara Falls peace protocol.

14.—The British House of Lords pass the bill amending the Irish Home Rule Act with amendments.

15.—General Huerta resigns as Provisional President of Mexico; Francisco Carbajal, Minister of Foreign Affairs, becomes Provisional President.

The British House of Lords reject the Plural Voting bill a second time.

Both houses of the French Assembly pass the budget for 1914.

17.—The Mexican Constitutionalists occupy San Luis Potosi and Guaymas.

20.—General Huerta leaves Puerto Mexico on the German cruiser *Dresden* for Kingston, Jamaica.

21.—A Home Rule Conference at London, suggested by King George, is opened by a speech by the King, which is attacked by the Liberal press.

Ahmed Mirza attains his official majority and is crowned Shah of Persia.

Serious riots, accompanying a strike involving over 100,000 men, occur in St. Petersburg.

24.—The Home Rule conference summoned by King George adjourns without reaching an agreement.

26.—British troops in Dublin kill four and wound several in an attempt to disarm a Nationalist mob of rifles illegally landed at Howth.

28.—Mme. Henriette Caillaux, on trial at Paris for the murder of Gaston Calmette, is acquitted by the jury.

29.—President Poincaré and Premier Viviani reach Paris on their return from Russia.

30.—Premier Asquith announces in the British House of Commons the temporary dropping of the bill to amend the Irish Home Rule bill.

31.—The London Stock Exchange and all other exchanges in the British Isles are closed.

AUGUST

1.—Norway declares her neutrality.

2.—King George issues a proclamation declaring a moratorium for a month on bills of exchange, later extended to all settlements.

3.—Italy proclaims her neutrality.

Gaston Doumergue joins the French Cabinet as Foreign Minister.

5.—Holland is placed completely under martial law.

6.—Holland and China proclaim their neutrality.

8.—It is announced that Denmark, Norway and Sweden have agreed to maintain their neutrality and to preserve mutual peace.

10.—Switzerland declares a state of siege.

President Carbajal of Mexico decides to resign; the Chamber of Deputies votes to dissolve.

11.—Holland proclaims a state of war

in several provinces on the German frontier.

The British Government agrees to guarantee the Bank of England against loss from discounting operations.

13.—President Carbajal of Mexico and his Cabinet leave Mexico City for Vera Cruz; the Federal army evacuates the city; an agreement is signed with the Constitutionalists as to the conditions of their entry into the capital.

15.—The Constitutionalist forces under General Obregon occupy Mexico City.

18.—The Canadian Parliament is opened in emergency session.

19.—Both houses of the Canadian Parliament endorse the British policy.

20.—General Carranza enters Mexico City as Provisional President.

Pope Pius X dies at Rome.

21.—Peace is concluded by the American commission between the warring factions in the Dominican Republic.

23.—The Swedish Parliament rejects a bill extending the suffragé to women.

26.—The French Cabinet is reorganized under Premier Viviani.

27.—President Bordas of the Dominican Republic resigns and Ramon Baez is elected Provisional President.

31.—General Carranza orders the closing of the port of Vera Cruz.

SEPTEMBER

1.—President Carranza of Mexico issues a decree denying the legal validity of American administration of the customs at Vera Cruz.

The British Government extends the general moratorium for a second month.

3.—Gen. Higinio Aguilar proclaims a revolution against President Carranza at Tehuacan, Mexico.

China protests against violation of her neutrality by Japanese, German and British troops.

Prince William of Wied leaves Albania for Italy after a bombardment of Durazzo by insurgents the previous day.

Cardinal Giacomo della Chiesa, Archbishop of Bologna, is elected Pope by the Sacred College in conclave at Rome; he chooses the name of Benedict XV.

4.—Cardinal Dominic Ferrata is appointed Papal Secretary of State.

6.—Pope Benedict XV is crowned in the Sistine Chapel.

7.—Germany warns China that she will be held responsible for permitting British and Japanese troops to cross her territory.

8.—Andrew Fisher forms a Cabinet in Australia.

10.—Turkey abrogates all conventions granting extraterritorial rights to the nationals of foreign powers.

12.—The Great Powers inform Turkey that they cannot accept the abrogation of treaty rights accorded to foreigners.

13.—Italian troops are landed at Avlona, Albania.

14.—The Rumanian Cabinet resigns.

15.—The British House of Commons passes a bill suspending for a year the operation of the Home Rule and Welsh Disestablishment acts.

General Carranza announces that he will turn over the Mexican Government to a Provisional President chosen by the Constitutionalists to become a candidate for the Presidency.

16.—John Redmond issues an appeal to the Irish to support England in the struggle against Germany.

18.—The British Parliament is prorogued; King George signs the Home Rule and Welsh Disestablishment bills.

19.—Felicitos Villareal, Financial Minister of Mexico, resigns.

23.—Gen. Francisco Villa declares war on General Carranza; the provinces of Chihuahua, Sonora, Zacatecas and a part of Coahuila join the revolt.

China replies to a protest of Germany disclaiming responsibility for violations of her neutrality.

27.—Martial law is proclaimed on the eastern frontier of Holland to prevent smuggling of prohibited goods into Germany.

28.—The Albanian Senate elects the Turkish Prince Burhan-Eddin as ruler.

30.—Italy protests to Austria-Hungary against the destruction of Italian shipping by floating mines in the Adriatic.

OCTOBER

1.—A conference between commissioners of General Carranza and General Villa at Aguascalientes, Mexico, arranges a truce pending a general convention of Constitutionalist chiefs on Oct. 10.

2.—China enters a third protest against the occupation of Chinese territory by Japanese troops.

4.—A convention of Constitutionalist generals at Mexico City rejects General Carranza's proffered resignation as Provisional President.

Essad Pasha is appointed President of the provisional government of Albania by the Albanian Senate.

5.—A disastrous earthquake in the province of Konia, Turkey, causes the loss of hundreds of lives.

9.—General Grandi, Italian Minister of War, resigns.

10.—A conciliation conference between representatives of Carranza and Villa opens at Aguascalientes, Mexico.

King Charles of Rumania dies at Bucharest, and is succeeded by his nephew, Prince Ferdinand of Hohenzollern-Sigmaringen.

11.—General Zupelli joins the Italian Cabinet as Minister of War.

King Ferdinand of Rumania takes the oath of office at Bucharest.

12.—It is announced in South Africa that a Boer force under Col. S. G. Maritz has rebelled; martial law is proclaimed throughout the Union.

13.—Cardinal Gasparri is appointed Papal Secretary of State.

16.—Marquis di San Giuliano, Italian Foreign Minister, dies at Rome; Premier Salandra assumes the portfolio of Foreign Affairs.

19.—The Haitian revolutionists occupy Cape Haytien; marines are landed from the U. S. cruiser *Tacoma* for the protection of American interests.

General Villa assures the Constitutionalist leaders at Aguascalientes, Mexico, that he will support a Provisional President chosen by the convention.

22.—The Constitutionalist convention at Aguascalientes, Mexico, appoints a committee of five to assume Cabinet offices in Mexico City.

26.—Gavrio Prinzip, the assassin, and 23 accomplices on trial at Sarajevo, Bosnia, are found guilty of treason in conspiring against the life of Archduke Franz Ferdinand of Austria.

An Italian naval force occupies Avlona, Albania.

27.—It is announced that a new revolt has begun in South Africa under Gen. Christian De Wet and Gen. Christian F. Beyers.

30.—The Constitutionalist convention at Aguascalientes, Mexico, adopts a decree removing both Carranza and Villa from office.

31.—Signor Salandra, Premier of Italy, and his Cabinet resign.

NOVEMBER

2.—The Constitutionalist conference at Aguascalientes, Mexico, elects Eulalio Gutierrez Provisional President for a term of 20 days.

Gen. Sir John Maxwell is made military governor of Egypt and places the country under martial law.

Three Turkish Ministers resign in opposition to the war.

3.—General Carranza refuses to approve the appointment of General Gutierrez as Provisional President.

4.—Signor Salandra, Premier of Italy, forms a new Cabinet.

Djavid Bey, Turkish Minister of Finance, resigns from the Cabinet.

6.—The Constitutionalist convention at Aguascalientes, Mexico, officially proclaims Eulalio Gutierrez Provisional President; General Villa offers to resign command of the army if necessary to eliminate Carranza.

7.—The Constitutionalist convention at Aguascalientes sends an ultimatum to Carranza demanding the surrender of the Government to General Gutierrez by Nov. 10.

8.—The Boer rebels under General Beyers are defeated with heavy loss on the Vet River, southeast of Bloemhof.

9.—General Carranza issues a proclamation requiring all Constitutionalist generals loyal to him to withdraw from the Aguascalientes convention; General Gutierrez proclaims himself Provisional President and names a Cabinet.

11.—The British Parliament is opened.

The Constitutionalist convention at Aguascalientes, Mexico, declares General Carranza a rebel; General Gutierrez appoints General Villa commander-in-chief of the forces of the provisional government of Mexico; Villa moves his troops against the forces of General Carranza.

13.—The warring Constitutionalist factions in Mexico agree upon an armistice until Nov. 20.

16.—General Carranza agrees to retire in favor of General Gutierrez as Provisional President of Mexico.

The Pope issues an encyclical urging peace among the warring nations of Europe.

17.—David Lloyd George submits a war budget to the British House of Commons.

The leaders of an alleged revolutionary plot, including five members of the Duma, are arrested at Petrograd.

19.—General Villa occupies Queretaro, Mexico, evacuated by the Carranza forces.

24.—The last of Carranza's troops evacuate Mexico City; the forces of Emiliano Zapata enter the city.

The appointment of Sir Henry Howard as British envoy to the Holy See is announced at Rome.

26.—General Carranza enters Vera Cruz with the loyal forces under General Obregon.

29.—The forces of General Villa capture the city of Pachuca, Mexico.

30.—General Villa enters Mexico City at the head of a Constitutionalist army of 25,000 men.

DECEMBER

1.—Gen. Christian De Wet, the South African rebel, is captured at Waterburg, British Bechuanaland.

2.—General Gutierrez, Provisional President of Mexico, completes a Cabinet with Iglesias Calderon as Minister of Foreign Relations.

3.—Provisional President Gutierrez enters Mexico City accompanied by Generals Villa and Zapata; the forces of General Carranza capture Guaymas.

The Italian Parliament is opened with a speech by Premier Salandra on the position of Italy, which arouses remarkable demonstrations.

4.—Juan Isidro Jiminez is proclaimed President of the Dominican Republic.

5.—The Italian Chamber of Deputies passes a vote of confidence in the Ministry by an immense majority.

The Servian Cabinet resigns; Premier Pachitch undertakes the formation of a new Ministry.

The Portuguese Cabinet resigns.

7.—The Netherlands Cabinet agrees to loan 10,000 tons of wheat to the Belgian Relief Commission.

The Japanese Diet opens.

8.—The Japanese Foreign Minister announces in the Diet that Japan has not decided to return Kiao-Chau to China.

9.—Emperor William of Germany is reported seriously ill of pneumonia in Berlin.

11.—The French Cabinet meets in Paris for the first time since Sept. 3.

13.—The French Government issues a notice bringing 21 communes of Alsace within the French postal service.

14.—The Turkish Parliament is opened.

18.—Great Britain proclaims a protectorate over Egypt and appoints Prince Hussein Kemal Pasha Sultan.

King Gustav of Sweden, King Haakon of Norway, and King Christian of Denmark, meet at Malmoe, Sweden.

A French court is installed at Thann, Alsace.

20.—Prince von Bülow presents his credentials to King Victor as German Ambassador to Italy.

21.—The capture of Puebla, Mexico, by Conventionist forces is officially announced at Washington.

22.—The Bulgarian Minister to Russia announces an agreement with Rumania for the cession to Bulgaria of territory taken from her after the second Balkan war.

The French National Assembly meets in Paris.

25.—The Japanese Diet is dissolved on the rejection of a measure for the increase of the army.

A revolution against Essad Pasha begins in Albania; Italian marines occupy Avlona.

29.—A new election law is promulgated in China, fixing the term of the President at ten years.

30.—It is reported at Rome that Italy has issued an ultimatum to Turkey demanding reparation for the Hodeida incident within two days.

CHRONOLOGY OF THE EUROPEAN WAR

JUNE

28.—Archduke Franz Ferdinand of Austria and his wife, the Duchess of Hohenberg, are assassinated at Sarajevo, Bosnia.

JULY

21.—Herr von Jagow, German Foreign Minister, declares to the British Ambassador that there should be no outside interference in the quarrel between Austria and Servia.

23.—Austria delivers an ultimatum to Servia demanding a reply within 48 hours with full compliance with specified conditions for the suppression of anti-Austrian propaganda in Servia.

24.—Russia requests Austria to extend the period of the ultimatum to allow European diplomacy to act, and announces that she cannot remain indifferent to an Austro-Servian conflict; Great Britain protests to Austria against the time limit, and urges Servia to reply favorably to as many points of the ultimatum as the time limit allows.

25.—Servia replies to Austria's ultimatum accepting conditionally nine of its 11 demands and suggesting the submission of the remaining two to The Hague; Austria declares the reply insufficient and severs diplomatic relations; Servia transfers the seat of government from Belgrade to Kragouyevatz.

26.—The German Emperor returns suddenly to Berlin; Servia begins mobilization of her army; Austria concentrates troops on the Danube opposite Belgrade; the British Admiralty cancels orders for the dispersal of the First Fleet at Portland; Russia countermands orders for army maneuvers.

27.—Sir Edward Grey announces in the House of Commons that France and Italy have accepted a proposal for a conference of "non-interested" powers; Germany declines to enter a conference which would in any way impair Austria's freedom of action, accepts mediation between Austria and Russia "in principle" and urges Great Britain to bring pressure to bear on Russia to localize the conflict; Austrian forces invade Servia.

Belgium begins a partial mobilization of her army.

28.—Austria declares war on Servia; the German Emperor asks the Czar to assist him in bringing about a peaceful solution; Germany orders the concentration of her fleet in home waters and recalls army officers on leave.

29.—Austria declines direct negotiations with Russia, and Austrian troops begin a bombardment of Belgrade, the Servians having destroyed the bridge

over the Danube; Russia orders a partial mobilization in the south, but agrees to accept any plan for a conference of the four "non-interested" powers, and disclaims any aggressive intention against Germany; Germany offers in return for British neutrality assurances that Germany will make no territorial acquisitions at the expense of France, and will respect the neutrality of Belgium and Holland if respected by other powers, but declines to formulate assurances with regard to French colonies; Great Britain warns Germany not to misunderstand her efforts for peace; the British First Fleet leaves Portland under sealed orders.

30.—Russia agrees to halt all military preparations if Austria will eliminate from her ultimatum the demands which destroy the sovereignty of Servia; Great Britain rejects Germany's bid for her neutrality, but offers to bind herself, if peace can be maintained, to promote an arrangement to assure Germany that no hostile policy will be adopted against her by the powers of the Triple Entente.

31.—Austria orders general naval and military mobilization, and moves troops to the Russian frontier; Russia orders general mobilization in consequence; Germany at midnight issues an ultimatum to Russia demanding demobilization within 12 hours; Germany presents a note to France demanding a statement of her attitude within 18 hours; Great Britain notifies Germany that if Germany and Austria will unite in the interest of peace, Great Britain will support them even against France and Russia; Great Britain asks France and Germany whether they will respect the neutrality of Belgium in the event of war; France agrees at once, Germany declines to make any engagement.

Holland, Belgium, and Switzerland order mobilization of their armies.

AUGUST

1.—Germany declares war on Russia and orders a general mobilization of her army; Germany asks Great Britain to formulate conditions on which she would remain neutral; Great Britain replies that she must keep her hands free.

France orders general mobilization of her army; Théophile Delcassé becomes Minister of War and Georges Clemenceau joins the Cabinet.

Italy and Belgium declare their neutrality.

2.—Germany issues an ultimatum to Belgium demanding friendly neutrality extending to the passage of German troops through Belgium.

German troops enter the neutral Duchy of Luxemburg and cross the French frontier from Luxemburg near Longwy, and from Lorraine near Nancy; Russian troops cross the German frontier at several points.

Great Britain assures France that in the event of an attack by the German fleet on French coasts or shipping, the British fleet would give all the protection in its power.

A German cruiser bombards the town of Libau, Russia.

Montenegro orders the mobilization of her army.

3.—Germany declares war on France, alleging acts of French aggression.

Belgium rejects Germany's demand for friendly neutrality and announces that she will defend her territory by every means in her power; Belgium declines an offer of the assistance of five French army corps.

Sir Edward Grey defines Great Britain's position in a speech in the House of Commons; all parties pledge their support to the Government, and the House of Commons votes a special credit of $525,000,000.

4.—Great Britain issues an ultimatum to Germany demanding satisfactory assurances that Belgium's neutrality will be respected, and on its rejection declares war; the British army is mobilized.

Germany declares war on Belgium; a large German army crosses the frontier and demands the surrender of Liège.

A British mine-layer is sunk by the German fleet in the North Sea.

The German Reichstag grants a war credit of $1,250,000,000.

Japan proclaims her desire to remain neutral and her readiness to fulfill the obligations of her British alliance.

The United States issues a proclamation of neutrality.

5.—The German advance through Belgium is checked by the Belgians at Liège; a German assault on the fortifications is repulsed with heavy loss.

The British cruiser *Amphion* sinks the German mine-layer *Königin Luise* in the English Channel.

Three members of the British Cabinet resign; Lord Kitchener enters the Cabinet as Secretary of State for War.

President Wilson tenders the good offices of the United States in the interest of peace as one of the signatories of The Hague Convention.

6.—The Belgians repel a renewed German attack on Liège, but lose two of the forts.

Austria-Hungary declares war on Russia.

The British cruiser *Amphion* is sunk by a mine in the North Sea.

Gen. Joseph Joffre is placed in supreme command of the French Army.

The British House of Commons passes an additional war budget of $500,000,000 and grants an army increase of 500,000 men.

7.—The Germans occupy the city of Liège, but are repulsed from the forts with heavy loss.

French forces invade southern Alsace.

Montenegro declares war on Austria.

8.—The French capture the Alsatian village of Altkirch after a severe engagement and occupy Mülhausen; French troops also capture two passes in the Vosges Mountains, Upper Alsace.

The first division of England's expeditionary army lands at Ostend, Calais, and Dunkirk.

A British cruiser squadron in the North Sea repulses an attack by German submarines, sinking the U-15.

A British force seizes Port Lome, German Togoland.

Servia declares war on Germany.

Portugal declares herself ready to fulfill the duties of her English alliance.

9.—Germany renews her offer of protection and integrity to Belgium in return for friendly neutrality.

10.—France and Austria sever diplomatic relations.

Austrian warships bombard the Montenegrin port of Antivari on the Adriatic; the Montenegrins enter Albania and occupy Scutari.

11.—The German cruisers *Goeben* and *Breslau* take refuge from the British fleet in the Dardenelles and are purchased by Turkey.

12.—The main body of the German army in Belgium begins an advance to the north of Liège.

Servian and Montenegrin forces begin a joint invasion of Bosnia.

Great Britain declares war on Austria.

Montenegro declares war on Germany.

Belgium rejects the German offer of peace.

14.—Great Britain, France, and Russia demand of Turkey the repatriation of the German crews of the cruisers *Goeben* and *Breslau*.

15.—Japan issues an ultimatum to Germany demanding the evacuation of Kiao-chau, China, and the withdrawal of all German warships from the Far East.

Austrian forces begin an invasion of Servia.

The Czar issues a proclamation promising reunion and autonomy to Poland under Russian suzerainty.

16.—The Austrian cruiser *Zenta* is sunk by a French squadron in the Adriatic off Antivari.

17.—The seat of the Belgian Government is moved to Antwerp.

18.—The French occupy Saarburg, Alsace.

The Russian mobilization is completed.

19.—The Germans advancing through Belgium occupy Louvain.

The Russians defeat a German army corps at Stallupönen, East Prussia.

The Servians win a decisive victory over the Austrians at Shabatz.

The Canadian Parliament authorizes the raising of an expeditionary force of 20,000 men and appropriates $50,000,000 for war purposes.

20.—The Germans occupy Brussels; the Belgian army falls back on Antwerp.

The French forces in Alsace reoccupy Mülhausen and capture Gebweiler; the French forces in Lorraine are repulsed by a superior German force and retreat across the frontier.

21.—The Germans occupy Ghent and begin an attack on Namur; they impose war levies of $40,000,000 on Brussels and $10,000,000 on Liège.

22.—A general engagement between the Germans and the Allies in Belgium is begun on the Charleroi-Namur line.

The Servians report the rout of a large Austrian force after a five-day battle on the River Drina.

The Japanese ultimatum expires at noon without reply from Germany.

23.—The Russians report an important victory near Gumbinnen by the army advancing into East Prussia.

Japan declares war on Germany.

24.—The Germans capture five of the nine forts at Namur and drive the forces of the Allies in Belgium back upon the French frontier fortifications; German cavalry enters France near Lille; German troops occupy Lunéville.

Austria announces the temporary abandonment of offensive operations against Servia.

The Austrian port of Cattaro is bombarded by British and French warships.

The Japanese begin the bombardment of Tsingtau.

25.—The French begin to withdraw from the occupied German territory; Mülhausen is evacuated.

The Belgians advance from Antwerp and defeat a German force at Malines.

A German airship drops bombs on Antwerp.

Austria declares war on Japan.

26.—The British take up a strong position before La Fère and Laon after four days of continuous fighting around St. Quentin and Cambrai in gradual retirement before an overwhelming German force.

The Germans sack and burn Louvain.

The German cruiser *Magdeburg* goes ashore in the Gulf of Finland and is destroyed by Russian warships.

German Togoland is surrendered un-

conditionally to British and French forces.

The French Cabinet resign and a new war Ministry is formed by Premier Viviani.

27.—The Germans capture the French fortress at Longwy; in the north they repulse the Belgians from Malines.

The North German Lloyd liner *Kaiser Wilhelm der Grosse*, a converted cruiser, is sunk by the British cruiser *Highflyer* off the west coast of Africa.

28.—The British fleet, in a night attack on the German fleet off Helgoland, sinks three German cruisers and two destroyers.

The Germans detach a large force from the army in northern France to oppose the Russians in East Prussia.

A large force of British marines is landed at Ostend.

Austria declares war on Belgium.

29.—The Germans capture the French fortress of La Fère.

The military governor of Paris orders the destruction of all buildings within the zone of fire of the defending forts.

The Russians occupy Allenstein and invest Königsberg, East Prussia.

An expeditionary force from New Zealand seizes Apia, German Samoa.

30.—The French evacuate Amiens, which is occupied by the Germans.

A German aëroplane drops bombs in Paris.

Japanese troops are landed at several points near Kiao-chau.

31.—The Russian army of invasion in East Prussia is defeated at Tannenberg with heavy loss and begins a retreat.

An Imperial decree changes the name of the Russian capital from St. Petersburg to Petrograd.

SEPTEMBER

1.—The Germans attack the British lines near Compiègne, France; the left wing of the Allies continues its retirement.

The Russians, after a week's fighting, win a decisive victory over the Austrians at Lemberg, Galicia.

2.—Japanese troops are landed at Lung-kow, in Chinese territory, for operations against Kiao-chau.

3.—The seat of the French Government is transferred to Bordeaux and Paris is placed in a state of siege.

The Russians occupy Lemberg and Halicz, Galicia, and begin a flank movement against the Austrian army operating in Poland.

Germany protests to China against permitting Japanese troops to land on Chinese territory.

4.—The right wing of the German line, under General von Kluck, turns away from Paris and marches diagonally across the front of the Allies; the Germans occupy Rheims.

The Belgians open the dikes and flood the country between Antwerp and Malines.

5.—The Germans advance south of the Marne as far as Coulommiers; General Joffre begins to dispose the Allied army for an offensive movement.

The British cruiser *Pathfinder* is sunk by a mine in the North Sea.

Great Britain, France, and Russia sign an agreement not to conclude peace separately and to accept only those terms satisfactory to all.

An imperial decree permitting Jews to become officers in the Russian Army is issued.

6.—The Battle of the Marne begins along a front from Ermenonville to Verdun; the Germans begin to retreat before a threatened envelopment of their right wing.

A French squadron bombards Cattaro.

7.—A general engagement begins along the whole line of the opposing armies in France, with the Allies on the offensive.

The Germans capture the fortress of Mauberge.

8.—The Allies drive back both wings of the German army; the fighting in the center is indecisive.

The Russians capture the fortress of Mikolaieff, Galicia.

The White Star liner *Oceanic*, a converted cruiser, runs aground on the north coast of Scotland.

9.—The left wing of the Allies continues its advance, the British army crossing the Marne; the battle in the center and right of the line continues without decisive result.

The Russians defeat the Austrians in a three days' battle near Rava-Russka, Galicia.

The Servians report a victory over the Austrians at the confluence of the Save and Drina.

Japan informs Russia that she will accept no conditions of peace without the consent of the Allies.

10.—The battle of the Marne ends with the first and second German armies in full retreat and driven back to the Soissons-Rheims line.

The Belgians resume offensive operations from Antwerp, and capture Malines and Aerschot.

The German cruiser *Emden* appears in the Bay of Bengal and captures six British ships, five of which are sunk.

The British Parliament votes an addition of 500,000 men to the army.

11.—The battle in France continues, the Allies still forcing back the Ger-

man right; the Germans evacuate Vitry and the British cross the Ourcq and Vesle; the French recapture Lunéville.

12.—The retreat of the German forces in France becomes general along the whole line as far east as Verdun.

13.—The battle of the Aisne begins; the German retreat is halted at the River Aisne in a strong and fully prepared position, extending from Soissons to the Argonne forest.

The German cruiser *Hela* is sunk by the British submarine E9 in the North Sea.

14.—The French reoccupy Amiens.

An Austrian army in Servia attacks Rozham, but is repulsed and driven back to the Drina.

The Cunard liner *Carmania*, a converted cruiser, sinks the German converted cruiser *Cap Trafalgar* off the east coast of South America.

15.—The center of the armies of the Allies continues its advance against the army of Crown Prince Frederick William between the forest of Argonne and the Meuse; on the left the French reoccupy Rheims.

16.—The Allies attack the German positions along the Aisne River without success.

The Russians begin an attack on the fortress of Przemysl, Galicia.

17.—The Germans in France attempt to resume the offensive but are driven back to their intrenched positions.

The Belgians repulse a large German force at Termonde.

18.—The Germans capture Beaumont; the Allies advance slightly on the wings.

Japanese troops are landed at Laoshan.

19.—A South African force occupies Lüderitz Bay, German Southwest Africa.

20.—Rheims Cathedral is fired and severely damaged by the German bombardment; the left of the Allies' army gains a slight advance.

The British cruiser *Pegasus* is disabled by the German cruiser *Königsberg* in Zanzibar Harbor.

21.—The advance of the left wing of the Allies' army continues to Lassigny.

The Russians capture the Austrian fortress of Jaroslav, near Przemysl.

A French gunboat sinks two German vessels and captures Coco Beach, Kamerun.

France submits to the neutral governments a formal protest against the destruction of Rheims Cathedral.

22.—German submarines sink the British cruisers *Cressy*, *Aboukir*, and *Hogue* in the North Sea near the Hook of Holland.

The Germans recross the Lorraine frontier into France.

British aëroplanes drop bombs on the Zeppelin shed at Düsseldorf, Germany.

The Servians defeat the Austrians after a battle of several days near Krupani, on the Drina River.

23.—The Allies continue to advance against the German right wing, which receives heavy reinforcements.

A force of 1,200 British troops from India and Australia is landed near Laoshan, China, to coöperate with the Japanese against Kiao-chau.

The German cruiser *Emden* bombards Madras.

24.—The left wing of the Allied army occupies Peronne.

A German naval expedition is defeated in an attempt to land troops at Windau, on the Baltic coast of Russia.

25.—The Allies' left wing is forced to yield slightly at Noyon but is reinforced by new British forces and resumes the offensive; on the right the Germans penetrate along the Meuse to St. Mihiel.

A German aeroplane drops a bomb in Boulogne.

An Australian force occupies Friedrich-Wilhelm, the capital of Kaiser Wilhelm's Land, German New Guinea.

France presents to the neutral governments detailed charges of violations of international conventions by the Germans.

26.—The Germans capture the fort Camp des Romains at St. Mihiel and cross the Meuse; the Allies continue to advance against their right wing.

27.—The retreat of the Russians from East Prussia is halted at the Niemen River and a battle begins between Grodno and Druskeniki.

28.—A German attack on the whole line of the Allies, sustained for three days, ends without success at any point.

An Anglo-French force captures Duala, capital of the German colony of Kamerun.

29.—The Germans begin an artillery attack on Antwerp, reoccupying Malines.

An Austrian mine in the Adriatic sinks an Italian fishing boat.

30.—Italy protests to Austria against the use of floating mines in the Adriatic.

OCTOBER

1.—The Russians defeat attempts of the Germans to cross the Niemen River near Druskeniki; the Russian forces in Austria appear before the outlying forts of Cracow.

The British Indian expeditionary force lands at Marseilles.

Austria promises Italy to remove the menace of floating mines from the Adriatic.

2.—The British Admiralty announces

its decision to mine certain areas of the North Sea.

3.—The British forces on the left wing of the Allies' line in France begin an extensive turning movement against the German right.

The Russians report the defeat of the German invading army in a five days' battle at Augustowo near the East Prussian frontier.

5.—The seat of the Belgian Government is removed from Antwerp to Ostend; three of the Antwerp forts are reduced by the German bombardment.

6.—The Allies gain a slight advance against the Germans near Soissons; the Germans appear in force on the left flank of the Allies near Lille.

Japanese warships seize the capital of the Marshall Islands in the Pacific.

7.—The Germans besieging Antwerp cross the Nethe and begin a bombardment of the inner line of forts.

The Allies repulse the German cavalry north of Lille and regain lost ground between Chaulnes and Roye.

With the aid of reinforcements from Königsberg the Germans check the Russian pursuit on the East Prussian frontier.

The Montenegrins defeat a force of 20,000 Austrians near Kalenovitch, Bosnia.

The British submarine E9 sinks a German destroyer off the mouth of the Ems.

8.—The German bombardment of Antwerp reaches the city; a part of the Belgian army is withdrawn.

British aeroplanes drop bombs in Düsseldorf, destroying an airship shed and a Zeppelin.

9.—Antwerp surrenders and is occupied by the Germans; the Belgian army withdraws after blowing up the fortifications.

10.—The Russians capture one of the outlying forts at Przemysl.

11.—The Belgian and British forces from Antwerp reach Ostend in safety.

German aviators drop bombs on Paris.

A German submarine sinks the Russian cruiser *Pallada* in the Baltic.

12.—The Austrians report the raising of the siege of Przemysl.

13.—The Germans enter Ghent; the Allies resume a violent offensive against the German right and occupy Ypres.

The Germans occupy Lille, and advance on Ostend; the Belgian Government is removed to Havre, France.

14.—The Germans enter Bruges in their advance on Ostend; the Belgian army establishes contact with the Allies' left.

The Canadian expeditionary force of 32,000 men arrives at Plymouth.

A fire in the Austrian arsenal at Trieste damages a battleship ready for launching and six torpedo boats under construction.

15.—The Germans occupy Ostend without resistance; the Allies capture Estaires and extend their lines to the Channel between Dunkirk and Ostend.

The British cruiser *Hawke* is sunk by a German submarine in the North Sea.

16.—The advance of the German army in Poland is checked within seven miles of Warsaw.

17.—The Allies recapture Armentières and make substantial progress north of Arras.

Four German destroyers are sunk off the Dutch coast by the British cruiser *Undaunted* and four destroyers.

The Japanese cruiser *Takachiho* is sunk by a mine in Kiao-chau Bay.

18.—The British submarine E3 is sunk by a German warship in the North Sea.

19.—British warships off the Belgian coast coöperate with the land forces against the German attacks.

An Austrian submarine is sunk by a French cruiser in the Adriatic.

20.—The Germans in Poland abandon the siege of Ivangorod and begin a general retreat.

22.—German cruisers bombard Papeete, chief town of the French island of Tahiti.

The Prussian Diet grants a war credit of $375,000,000.

Gen. Helmuth von Moltke resigns as chief of the German General Staff because of ill health; he is succeeded by General von Falkenhayn.

The British Government orders all German and Austrian subjects resident in the United Kingdom interned.

23.—The French capture Altkirch, Upper Alsace.

24.—The Germans cross the Yser Canal in force between Nieuport and Dixmude.

A German submarine is sunk by a British destroyer off the coast of Holland.

27.—The French east of Nancy drive the Germans across the frontier into Upper Alsace.

The British battleship *Audacious* is sunk by a German mine off the north coast of Ireland.

28.—The German cruiser *Emden* enters the harbor of Penang, Straits Settlements, and sinks a Russian cruiser and a Japanese gunboat.

29.—Turkish warships bombard Odessa and other unfortified Russian towns on the Black Sea; the Russian gunboat *Donets* is sunk at Odessa.

Prince Louis of Battenberg resigns as First Sea Lord of the British Admiralty.

30.—Great Britain demands from Tur-

key an explanation of the attacks on Russia in the Black Sea and the dismantling of the cruisers *Goeben* and *Breslau* purchased from Germany; the Russian Ambassador is ordered to leave Constantinople.

The Belgians open the dikes on the coast and flood the country along the Yser.

Baron Fisher of Kilverstone is appointed First Lord of the British Admiralty.

The German cruiser *Königsberg* is blockaded in the Rufigi River, German East Africa, by the sinking of British colliers in the stream.

31.—Diplomatic relations are ruptured between Turkey and the Allies.

A German submarine sinks the British cruiser *Hermes* in the Straits of Dover.

NOVEMBER

1.—Five German cruisers defeat a British squadron of three cruisers and a transport in a naval battle off Coronel, Chile, sinking the cruisers *Monmouth* and *Good Hope;* the cruiser *Glasgow* and transport *Otranto* escape.

2.—The British Admiralty declares the entire North Sea a military area.

3.—The Russians penetrate the German defense on the East Prussian frontier, capturing Bakalargewo; in Poland they pursue the retreating Germans and Austrians and win a decisive victory over the Austrians from Kielce to Sandomierz.

Russian troops advancing over the Caucasian frontier occupy Bayazid.

A German naval squadron makes a demonstration off Yarmouth, England; the British submarine D5, in pursuit, is sunk by a mine.

A combined British and French squadron bombards the Dardanelles; a British cruiser bombards and occupies Akabah, on the Red Sea.

4.—The Russians dislodge the German rear guard in East Prussia from Mlawa, Poland.

The German cruiser *Yorck* is sunk by a mine in Jade Bay.

A British force is repulsed with heavy loss in an attack on an important railway terminus in German East Africa.

Turkey withdraws her diplomatic representatives from Great Britain, Russia, France, and Servia; the Anglo-French squadron resumes the bombardment of the Dardanelles.

5.—The Russians capture Jaroslav and win a decisive victory over the Austrians along the whole front in Galicia.

Great Britain and France formally declare war on Turkey; Great Britain annexes the island of Cyprus.

6.—The Russians capture the fortified town of Keprekioi, Armenia; the Russian fleet bombards the Turkish Black Sea port of Sanguidak, sinking four Turkish transports.

The German Government issues an order interning British residents at Ruhleben, near Berlin.

7.—The German garrison of Tsingtau, Kiao-chau, surrenders the fortress to the Japanese.

The German cruiser *Geier* is interned at Honolulu.

8.—The Russian General Staff reports the capture of Wirballen, East Prussia, and the crossing of the German frontier into Posen at Pleschen.

A British Indian force occupies the Turkish port of Fao, at the head of the Persian Gulf.

9.—The Australian cruiser *Sydney* discovers and destroys the German cruiser *Emden* at the Cocos Islands, southwest of Java.

10.—The Germans in Flanders capture Dixmude, cross the Yser Canal, and advance west of Langenmarck.

11.—The Russians capture Johannisburg, in East Prussia.

The British gunboat *Niger* is torpedoed and sunk by a German submarine in Deal harbor.

The Japanese torpedo boat 33 is sunk by a mine in Kiao-chau Bay.

12.—The Turks penetrate Russian territory on the Caucasian frontier and capture Kurdaghlu.

13.—The Russians in East Prussia occupy Rypin; in Galicia they occupy Tarnow and cross the River Schreniava, 15 miles from Cracow.

15.—British Indian troops, assisted by a cruiser, capture the Turkish fortress Turba, near Aden, and the town of Sheikh-Said.

16.—The Germans report a decisive victory over several Russian army corps at Wlozawsk, Poland.

The Russians admit the retirement of their advance guard which invaded Turkey on the Caucasian frontier after a severe check at Koprukeui.

The British fleet bombards the Belgian towns of Knocke and Zeebrugge, occupied by the Germans.

The Sheikh-ul-Islam proclaims a holy war against the Allies.

The British House of Commons votes an additional war credit of $225,000,000.

The prohibition of the sale of intoxicants in Russia becomes absolute.

17.—A German squadron bombards the Russian port of Libau.

The Russian Black Sea fleet bombards Trebizond.

The German converted cruiser *Berlin* is interned at Trondhjem, Norway.

18.—A Russian squadron in the Black Sea engages the Turkish cruisers *Goe-*

ben and *Breslau* off Bhersones and severely damages the former.

19.—The Russian pursuit of the retreating Germans in Poland is checked by a strong German offensive from Thorn.

20.—The British House of Commons authorizes the raising of an additional army of 1,000,000 men.

21.—British aeroplanes drop bombs on the Zeppelin factory at Friedrichshafen, Germany.

British forces occupy the Arabian port of Basra, on the Shat-el-Arab River.

22.—The Germans begin a heavy attack in force from Ypres to La Bassée, in an attempt to capture Ypres, held by the British.

The German destroyer S124 is wrecked in collision with a Danish steamer near the Swedish coast.

23.—The Servians claim a victory over the Austrians at the Kolubara River.

British warships bombard the German naval base at Zeebrugge, Belgium.

The German submarine U18 is rammed and sunk by a British destroyer off the north coast of Scotland.

24.—The French bombard Arnaville, on the Lorraine frontier, ten miles from Metz.

The Portuguese Congress authorizes the Government to coöperate with the Allies whenever it appears necessary.

25.—Large German forces penetrate the Russian line in Poland.

It is announced in the British House of Commons that Great Britain and France have appealed to the United States to use its good offices with Colombia and Ecuador for the preservation of strict neutrality of high-powered wireless stations.

26.—The British battleship *Bulwark* is blown up in Sheerness harbor by an unexplained explosion.

27.—The Russians occupy Czernowitz, capital of Bukowina.

An engagement takes place between strong Russian and Turkish forces west of Juzveran.

28.—The Russians, after a ten days' attack, capture the Austrian positions in Galicia protecting the passes of the Carpathians.

30.—King George of Great Britain visits the battle line in France.

British warships renew the bombardment of the German base at Zeebrugge.

DECEMBER

1.—The Russians occupy Wieliczka, south of Cracow.

2.—Russian troops defeat the Turks and occupy the towns of Zeri and Keshkal.

Belgrade, evacuated by the Servians on the preceding day, is occupied by Austrian troops.

An aviator drops bombs on the Krupp gun factory at Essen, Germany.

The German Reichstag assembles to vote a new war credit of $1,250,000,000 and adjourns to March 2.

3.—The Russians beyond the Carpathians capture Bartfeld, Hungary.

5.—The Germans are forced by constant French artillery fire to evacuate Vermelles, near Bethune, France.

French aviators drop bombs on the aeroplane hangars at Freiburg, Germany.

6.—The Germans capture Lodz, Poland, after several days of attack.

The Russians begin the bombardment of Cracow.

The Turkish cruiser *Hamidieh* is reported to have returned to Constantinople badly damaged by a mine.

7.—The Russians repulse a strong German offensive along the Ilow-Glowno front.

8.—A British squadron engages a squadron of five German cruisers off the Falkland Islands, sinking the *Scharnhorst, Gneisenau,* and *Leipzig,* and capturing two colliers; the German cruisers *Dresden* and *Nürnberg* attempt to escape with the British in pursuit; the *Nürnberg* is overhauled and sunk.

A British squadron bombards the Belgian coast between Ostend and Nieuport in conjunction with active land operations in which the British recapture Passchendaele.

The Servians claim a decisive victory over two Austrian army corps, resulting in the recapture of Valjevo and Ushitza.

The Turkish forces at Kurna, on the Tigris, surrender to the British Indian expeditionary force after several days of fighting.

9.—The German columns advancing in Poland from the north along the right bank of the Vistula occupy Przasny.

The Servians repulse with heavy loss an Austrian attack on Kosmai, 30 miles south of Belgrade.

French aviators drop bombs on the station and aviation hangars at Freiburg.

10.—Several German submarines attempting to enter Dover harbor are repulsed by the guns of the forts.

11.—Turkish troops violate the Italian consulate at Hodeida, on the Red Sea, and arrest a British consul who had taken refuge therein.

12.—The Montenegrins occupy Vishegrad, Bosnia.

13.—The Russians report success in their offensive in the Mlawa region.

The Austrians recapture Dukla, Galicia.

The British submarine B11 enters the Dardanelles and torpedoes the Turkish battleship *Messudieh*.

14.—The Austrians retreating from Servia evacuate Belgrade.

The Germans recapture the village of Steinbach, Alsace.

15.—The Servians reoccupy Belgrade.

The German converted cruiser *Cormoran* is interned at Guam.

Turkey returns the British consul at Hodeida to the Italian consulate and offers excuses for the breach of international courtesy.

16.—A squadron of five German cruisers elude the British patrols in the North Sea and bombard the towns of Hartlepool, Scarborough, and Whitby on the east coast of England.

17.—The Allies occupy Westende, on the Belgian coast.

The Germans announce that the Russians are in retreat in the whole of Poland and that the Russian offensive against Silesia and Posen has completely broken down.

18.—The Germans capture Lowicz, Poland; the Russians form a new line along the Bzura River.

The Russian Admiralty reports the sinking of the German cruiser *Friedrich Karl* in the Baltic late in November.

The French Ministry of Marine announces the capture by the British auxiliary cruiser *Empress of Japan* of the collier *Expod*, with 43 of the crew of the *Emden*.

A German force captures the fort of Naubilla in the Portuguese African colony of Angola.

19.—The German advance in Poland is checked at the Bzura River, 30 miles from Warsaw.

British and French warships bombard the interior forts of the Dardanelles.

21.—The Russian War Office announces a new invasion of German territory by the troops pursuing the retreating Germans in the region of Mlawa.

23.—The Russians near Sochaczew rout a strong German force which effects the passage of the Bzura River; they defeat also a German column which crosses the Pilica.

The Germans report the recapture of Mlawa, Poland, and a new advance from Niedenburg and Soldau.

The withdrawal of the Russians from the investment of Cracow is reported from Petrograd.

The French National Assembly votes unanimously an appropriation of $1,700,000,000 for the expenses of the next six months.

24.—A German aeroplane drops a bomb on Dover, England.

A British airship drops bombs on a German airship shed at Brussels.

25.—A British fleet of seven hydroaeroplanes, convoyed by a naval squadron as far as Helgoland Bight, attack the naval harbor of Cuxhaven, Germany.

Two German aeroplanes appear over Southend and Sheerness, England, and are driven off by British aviators.

It is announced at Washington that Germany has notified certain South American countries of the withdrawal of recognition of the exequaturs of consuls accredited to Belgium.

26.—The Germans admit the failure of their attacks on the Bzura River; the main attack against the Russian lines is transferred to the Pilica River, south of Warsaw.

The Austrians admit the recapture of Krosno and Jaslo by the Russians.

A German airship drops bombs on Nancy, France; German aeroplanes drop bombs on Sochaczew, Poland; French aviators bombard barracks and railroad stations in Metz.

28.—The Russians report a retreat from Cracow to the Biala River and defeat of two Austrian armies which attempted to cut off the Russian forces in western Galicia.

29.—The French report the capture of the village of St. Georges, near Nieuport, and the investment of Steinbach, Upper Alsace.

Germany admits the success of the Russians against the Austrians in Galicia.

30.—The Russians report the retreat of the Germans from their position on the right bank of the Bzura and the capture of Novo Korchin and Senislavice on the Nida.

Four German aeroplanes drop bombs on Dunkirk.

Belgium protests to the United States against the seizure of merchandise by the Germans.

The French occupy a part of the village of Steinbach, Upper Alsace.

AMERICAN NECROLOGY

ABBOTT, John T., Keene, N. H., March 8, aged 50; Minister to Colombia, 1889.

ALLERTON, Samuel Waters, Chicago, Feb. 22, aged 85; capitalist.

AMES, William, Providence, R. I., March 8, aged 71; Civil War general.

APPEL, Daniel Mitchell, Honolulu, April 23, aged 59; U. S. A. surgeon in charge of the Department of Hawaii.

BACON, Augustus Octavius, Washington, Feb. 14, aged 74; Senator from Georgia since 1894.

BAER, George Frederick, Philadelphia, April 26, aged 71; president of the Philadelphia & Reading Railroad.

BAILEY, William Whitman, Providence, R. I., Feb. 20, aged 70; botanist.

BALLARD, Addison, Pittsfield, Mass., Dec. 2, aged 92; Congregationalist clergyman, educator.

BANGS, Lemuel Bolton, New York, Oct. 4, aged 72; surgeon.

BARLOW, John Whitney, New London, Conn., March 1, aged 75; brigadier-general, U. S. A., retired.

BAYLES, George James, Orange, N. J., Nov. 20, aged 45; ecclesiastical lawyer.

BEARDSLEE, Clark Smith, Hartford, Conn., April 14, aged 64; Congregationalist theologian.

BEATH, Robert Burns, Philadelphia, Nov. 25, aged 75; Civil War general.

BEATTY, John, Columbus, O., Dec. 21, aged 86; Civil War general, Representative from Ohio, 1868-73.

BEATTY, William Henry, San Francisco, Aug. 4, 76; Chief Justice of the Supreme Court of California.

BEAVER, James Addams, Bellefonte, Pa., Jan. 31, aged 76; jurist, governor of Pennsylvania, 1887-91.

BENJAMIN, Samuel Greene Wheeler, Burlington, Vt., July 19, aged 77; artist, author, U. S. Minister to Persia, 1883-86.

BENNETT, Charles Goodwin, Brooklyn, May 25, aged 50; former Secretary of the Senate, Representative from New York, 1895-99.

BEST, Dionysius F., Pittsburgh, April 26, aged 52; Roman Catholic priest, provincial of the Carmelite Order.

BICKMORE, Albert Smith, Nonquit, Mass, Aug. 12, aged 75; educator.

BIERCE, Ambrose, killed in Mexico, aged 72; author.

BINGHAM, Joel Foote, Hartford, Conn., Oct. 18, aged 87; Protestant Episcopal clergyman.

BIRKHIMER, William Edward, Washington, June 10, aged 66; brigadier-general, U. S. A., retired.

BISHOP, George Sayles, East Orange, N. J., March 12, aged 77; clergyman of the Reformed Church, author.

BLAKE, Lillie Devereux, New York, Dec. 30, 1913, aged 80; pioneer woman suffragist.

BOWMAN, Thomas, Orange, N. J., March 3, aged 96; bishop of the Methodist Episcopal Church.

BRADBURY, William Frothingham, Cambridge, Mass., Oct. 22, aged 85; educator.

BRADFORD, Royal Bird, Chelsea, Mass., Aug. 4, aged 70; rear-admiral, U. S. N., retired.

BRADLEY, William O'Connell, W[illegible]ington, May 23, aged 67; U. S. Sen[illegible]ks from Kentucky since 1909.

BREMNER, Robert Gunn, Baltimore, Feb. 5, aged 39; Representative from the Sixth District of New Jersey.

BROOKS, James Byron, Syracuse, N. Y., June 17, aged 74; dean of the College of Law, Syracuse University.

BROWN, Charles Rufus, Newton, Mass., Feb. 2, aged 64; Baptist theologian.

BRUCE, Wallace, De Fumak Springs, Fla., Jan. 2, aged 69; author.

BRYAN, William Shepard, Baltimore, April 13, aged 55; lawyer, attorney-general of Maryland, 1903-7.

BRYANT, Joseph Decatur, New York, April 7, aged 69; surgeon.

BUCKNER, Simon Bolivar, Munford, Ky., Jan. 8, aged 91; Confederate general, Governor of Kentucky, 1887-91, Gold Democrat candidate for Vice-President, 1896.

BURDETT, Samuel Swinfin, Leicester, England, Sept. 24, aged 78; Representative from Missouri, 1869-73, Commissioner of the General Land Office, 1874-75.

BURDETTE, Robert Jones, Pasadena, Cal., Nov. 19, aged 70; Baptist clergyman, humorist and lecturer.

BUSSE, Fred A., Chicago, July 9, aged 48; Mayor of Chicago, 1907-11.

BUTLER, Edward Hubert, Buffalo, March 9, aged 63; publisher of the *Buffalo Evening News*.

CADWALADER, John Lambert, New York, March 11, aged 76; lawyer, Assistant Secretary of State, 1874-77.

CALVERLEY, Charles, Essex Fells, N. J., Feb. 25, aged 80; sculptor.

CAPEN, Samuel Billings, Shanghai, Jan. 29, aged 71; merchant.

CARLETON, Bukk G., New York, Oct. 20, aged 57; surgeon.

CARR, Camillo Cassatti Cadmus, Chicago, July 24, aged 72; brigadier-general, U. S. A., retired.

CASEY, Lyman R., Washington, Jan. 26, aged 76; U. S. Senator from North Dakota, 1889-93.

CATTERAL, Ralph Charles Henry, Huron, Mich., Aug. 2, aged 48; professor of history in Cornell University.

CAWEIN, Madison Julius, Louisville, Ky., Dec. 7, aged 49; poet.

CHAFFEE, Adna Romanza, Los Angeles, Nov. 1, aged 72; lieutenant-general, U. S. A., retired, Chief of Staff, 1904-6.

CHAMBERLAIN, Alexander Francis, Worcester, Mass., April 8, aged 48; professor of anthropology in Clark University.

CHAMBERLAIN, Joshua Lawrence, Brunswick, Me., Feb. 24, aged 85; Governor of Maine, 1866-71, president of Bowdoin College, 1871-83.

CHANDLER, Seth Carlo, Wellesley Hills, Mass., Dec. 31, 1913, aged 67; astronomer.

CHAPIN, Henry Barton, White Plains.

N. Y., July 7, aged 86; Presbyterian clergyman and educator.

CHETLAIN, Augustus Louis, Chicago, March 15, aged 89; general of volunteers in the Civil War, U. S. Consul-General at Brussels, 1869-72.

CLABAUGH, Harry M., Washington, March 6, aged 58; chief justice of the Supreme Court of the District of Columbia since 1904.

CLARK, William Meade, Richmond, Va., April 29, aged 59; Protestant Episcopal clergyman.

CLAYTON, Powell, Washington, Aug. 25, aged 81; Governor of Arkansas, 1868-71, U. S. Senator from Arkansas, 1871-77.

COE, Edward Benton, New York, March 18, aged 71; clergyman of the Reformed Church.

COLE, Aaron Hodgman, Chicago, Dec. 31, 1913, aged 57; biologist.

CONGER, Everett Lorentus, Pasadena, Cal., Nov. 17, aged 74; Universalist clergyman.

CORWIN, Edward Tanjore, North Branch, N. J., June 23, aged 79; Reformed Church clergyman and author.

CREAMER, Thomas J., New York, Aug. 4, aged 71; Representative in Congress from New York, 1873-75.

CRIDLER, Thomas Wilbur, New York, Feb. 23, aged 63; Third Assistant Secretary of State, 1897-1901.

CROSBY, John Schuyler, Newport, R. I., Aug. 8, aged 74; colonel, U. S. A., retired. Governor of Montana, 1882-4.

CULLOM, Shelby Moore, Washington, Jan. 28, aged 84; U. S. Senator from Illinois, 1883-1913.

CULMER, Henry L. A., Salt Lake City, Feb. 10, aged 59; painter.

CUNNINGHAM, Sumner Archibald, Nashville, Tenn., Dec. 20, 1913, aged 70; journalist.

DANA, Charles Edmund, Philadelphia, Feb. 1, aged 71; art critic and author.

DAUGHERTY, Jerome, New York, May 24, aged 65; former president of Georgetown University and chancellor of Fordham University.

DAVENPORT, James LeRoy, Westfalls Church, Va., April 2, aged 69; Commissioner of Pensions, 1909-13.

DAVIS, George Breckinridge, Washington, Dec. 15, aged 67; major-general, U. S. A., retired.

DAVIS, Wirt, Washington, Feb. 11, aged 74; brigadier-general, U. S. A., retired.

DE GRAW, Peter Voorhees, Washington, Aug. 22, aged 60; Assistant Postmaster-General, 1905-13.

DE LEON, Daniel, New York, May 11, aged 51; leader of the Socialist Labor party, editor of the *Daily People*.

DE LEON, Thomas Cooper, Mobile, March 19, aged 74; author.

DENISON, Henry Willard, Tokio, July 3, aged 68; legal adviser to the Japanese Department of Foreign Affairs.

DENNIS, James Shepard, Montclair, N. J., March 21, aged 71; Presbyterian clergyman, missionary and author.

DE VINNE, Theodore Low, New York, Feb. 16, aged 85; printer, author.

DILLON, John Forrest, New York, May 5, aged 82; lawyer.

DODGE, Grace Hoadley, New York, Dec. 27, aged 58; philanthropist.

DRAPER, Eben Sumner, Greenville, S. C., April 9, aged 55; Governor of Massachusetts, 1909-11.

DRESSLER, William, New York, July 2, aged 88; musician.

DROUET, Robert, New York, Aug. 17, aged 44; actor, playwright.

DUDLEY, William Lofland, Nashville, Tenn., Sept. 8, aged 55; chemist.

DUNCAN, Robert Kennedy, Pittsburgh, Feb. 18, aged 45; chemist.

DUNLAP, Andrew, Washington, April 11, aged 69; rear-admiral, U. S. N., retired.

DURYEA, Hiram, Brooklyn, May 5, aged 80; Civil War general, manufacturer.

DYER, George Leland, Winter Park, Fla., April 2, aged 64; commodore, U. S. N., retired, Governor of Guam, 1904-5.

EATON, Amasa Mason, Providence, R. I., Oct. 3, aged 73; lawyer, president of the Commission on Uniform State Legislation, 1901-10.

EDDY, Frank Woodman, Detroit, June 12, aged 62; merchant.

EMERSON, Ralph, Rockford, Ill., Aug. 19, aged 83; manufacturer.

FAHNESTOCK, Harris Charles, New York, June 4, aged 79; banker.

FARIS, George Washington, Washington, April 17, aged 59; Representative from Indiana, 1895-1901.

FELS, Joseph, Philadelphia, Feb. 22, aged 59; manufacturer, philanthropist.

FELTON, Charles, Menlo Park, Cal., Sept. 14, aged 82; Representative from California, 1885-89, Senator, 1891-93.

FIELD, Edward Loyal, New York, March 22, aged 58; painter and etcher.

FIELD, Wells Laflin, Washington, Nov. 27, aged 68; rear-admiral, U. S. N., retired.

FLÜGEL, Ewald, Palo Alto, Cal., Nov. 15, aged 51; professor of English philology in Leland Stanford University.

FORTIER, Alcée, New Orleans, Feb. 14, aged 57; professor of Romance languages in Tulane University.

FOSHAY, James A., Los Angeles, Jan. 14, aged 57; educator.

FOUSE, Levi Garner, Philadelphia, Jan. 16, aged 63; life-insurance underwriter.

FRAILEY, Leonard August, Washington, Dec. 31, 1913, aged 70; rear-admiral, U. S. N., retired.

FRENCH, William Merchant Richardson, Chicago, June 3, aged 70; director of the Art Institute of Chicago.

FROTHINGHAM, Washington, Fonda, N. Y., Oct. 20, aged 93; Presbyterian clergyman, author and journalist.

FUREY, John Vincent, Brooklyn, Dec. 17, aged 75; brigadier-general, U. S. A., retired.

GAINES, Reuben Reid, Austin, Tex., Oct. 13, aged 77; chief justice of the Supreme Court of Texas, 1894-1911.

GANNETT, Henry, Washington, Nov. 5, aged 68; geographer.

GANS, Edgar Hilary, Baltimore, Sept. 20, aged 58; lawyer.

GEORGE, Henry H., Beaver, Pa., March 25, aged 81; Reformed Presbyterian clergyman.

GERAGHTY, Martin John, Chestnut Hill, Pa., Sept. 28, aged 46; Roman Catholic clergyman, provincial of the Augustinian Order.

GILLETT, William Kendall, New York, Sept. 28, aged 54; professor of Romance languages in New York University.

GINN, Edwin, Winchester, Mass., Jan. 21, aged 76; publisher, peace advocate.

GIRARD, Alfred Conrad, Washington, Jan. 31, aged 72; brigadier-general, U. S. A., retired.

GOODNIGHT, James Lincoln, Red Boiling Springs, Tenn., Oct. 2, aged 68; Cumberland Presbyterian clergyman.

GOOLD, Nathan, Portland, Me., Feb. 27, aged 68; librarian and historian.

GRANGER, Arthur Otis, Philadelphia, July 30, aged 68; manufacturer.

GREENE, Richard Gleason, New York, July 7, aged 85; Congregationalist clergyman, editor.

GRIFFITHS, John Lewis, London, May 17, aged 58; U. S. consul-general at London.

GRISWOLD, Putnam, New York, Feb. 26, aged 38; singer.

HAGGIN, James Ben Ali, Newport, R. I., Sept. 12, aged 87; capitalist.

HALL, Charles Badger, Washington, May 11, aged 70; major-general, U. S. A., retired.

HALL, Charles Martin, Daytona, Fla., Dec. 27, aged 51; metallurgist.

HALL, Robert Henry, Chicago, Dec. 29, aged 77; brigadier-general, U. S. A., retired.

HAMILTON, William Reeve, Milwaukee, Sept. 16, aged 59; colonel, U. S. A., retired, author.

HARPER, Roger Francis, London, Aug. 6, aged 50; professor of Semitic languages in the University of Chicago.

HARRIMAN, J. Borden, Washington, Dec. 1, aged 50; financier.

HARRINGTON, Francis Bishop, Brookline, Mass., June 8, aged 59; surgeon.

HAWKINS, John Parker, Indianapolis, Feb. 7, aged 83; brigadier-general, U. S. A., retired.

HAYNES, Emory James, Poughkeepsie, N. Y., Dec. 31, aged 67; Methodist clergyman, editor, and author.

HEAD, Franklin Harvey, Chicago, June 28, aged 79; manufacturer.

HEDMAN, John, Waterville, Me., Feb. 20; professor of Romance languages in Colby College.

HEINZE, F. Augustus, Saratoga, N. Y., Nov. 4, aged 44; mine owner.

HENSON, Poindexter Smith, Chicago, April 24, aged 82; Baptist clergyman.

HILL, George William, Franklin, Ga., March 30, aged 68; editor of the U. S. Department of Agriculture, 1899-1911.

HILL, George William, Nyack, N. Y., April 16, aged 76; astronomer.

HISCOCK, Frank, Syracuse, N. Y., June 18, aged 79; U. S. Senator from New York, 1887-93.

HOLDEN, Edward Singleton, West Point, N. Y., March 16, aged 66; astronomer, librarian of the U. S. Military Academy.

HOLLAND, James Buchanan, Conshohocken, Pa., April 24, aged 56; U. S. district judge.

HOLLAND, John Philip, Newark, N. J., Aug. 12, aged 72; inventor of the Holland submarine boat.

HOOKER, Charles Edward, Jackson, Miss., Jan. 7, aged 89; Representative from Mississippi, 1875-83, 1887-95, 1901-3.

HOOPER, Franklin William, Walpole, N. H., Aug. 1, aged 63; director of the Brooklyn Institute of Arts and Sciences.

HOPKINS, Isaac Stiles, Atlanta, Feb. 3, aged 72; Methodist Episcopal clergyman and educator.

HORNBLOWER, William Butler, Litchfield, Conn., June 16, aged 63; judge of the New York Court of Appeals.

HOUSTON, Edwin James, Philadelphia, March 1, aged 66; electrical engineer.

HOVEY, Horace Carter, Newburyport, Mass., July 28, aged 81; Presbyterian clergyman, geologist.

HOWISON, Henry Lycurgus, Yonkers, N. Y., Dec. 31, aged 77; rear-admiral, U. S. A., retired.

HOXIE, Vinnie Ream, Washington, Nov. 20, aged 84; sculptor.

INGALLS, Melville Ezra, Hot Springs, Va., July 11, aged 71; railroad official.

IRWIN, Agnes, Philadelphia, Dec. 5, aged 72; first dean of Radcliffe College.

ISHAM, Samuel, Easthampton, N. Y., June 12, aged 59; painter.

IVES, Brayton, Ossining, N. Y., Oct. 22, aged 74; Civil War general, financier.

JANSEN, Marie (Hattie Johnson), Milford, Mass., March 20, aged 65; actress.

JEFFERSON, Samuel Mitchell, Lexington, Ky., Feb. 20, aged 64; professor of philosophy in Transylvania University.

JOHNSTON, Christopher, Baltimore, June 26, aged 55; professor of Oriental history in Johns Hopkins University.

JONAS, Samuel P., Camden, N. J., March 14, aged 54; former U. S. District judge.

JONES, Francis Wiley, West Palm Beach, Fla., March 30, aged 67; telegraph engineer.

JONES, Thomas Goode, Montgomery, Ala., April 28, aged 69; U. S. district judge.

JONES, William Albert, Washington, Nov. 14, aged 73; brigadier-general, U. S. A., retired.

JORDAN, Chester Bradley, Lancaster, N. H., Aug. 24, aged 74; Governor of New Hampshire, 1901-3.

JUDSON, Edward, New York, Oct. 23, aged 70; Baptist clergyman.

KEAN, John, Ursino, N. J., Nov. 4, aged 62; U. S. Senator from New Jersey, 1899-1911.

KELLOGG, Amos Markham, New Rochelle, N. Y., Oct. 3, aged 82; editor and author.

KELLOGG, Edgar Romeyn, Toledo, O., Oct. 7, aged 72; brigadier-general, U. S. A., retired.

KING, Samuel Archer, Philadelphia, Nov. 3, aged 86; aëronaut.

KOOPMAN, Augustus, Etaples, France, Jan. 31, aged 45; painter and etcher.

LAMB, John E., Terre Haute, Ind., Aug. 23, aged 62; Representative from Indiana, 1883-85.

LANE, Gardiner Martin, Boston, Oct. 3, aged 55; banker, president of the Boston Museum of Fine Arts.

LARNED, Walter Cranston, Chicago, June 19, aged 63; lawyer and author.

LAWRENCE, James, Oakland, Md., July 4, aged 64; jurist.

LEE, Francis Bazley, Philadelphia, May 2, aged 45; lawyer and historical writer.

LE FEVRE, Egbert, New York, March 30, aged 55; physician.

LEWIS, Alfred Henry, New York, Dec. 23, aged 56; novelist.

LILLEY, Robert, Boston, Oct. 29, aged 75; editor and Orientalist.

LINDSAY, Henry Drennan, Pittsburgh, Jan. 18, aged 54; president of the Pennsylvania College for Women.

LOCKWOOD, Wilton, Brookline, Mass., March 20, aged 52; portrait painter.

LOGAN, Thomas Muldrup, New York, Aug. 11, aged 74; financier, Confederate veteran.

LURTON, Horace Harmon, Atlantic City, N. J., July 12, aged 70; associate justice of the U. S. Supreme Court.

LYDECKER, Garrett J., Detroit, July 9, aged 70; brigadier-general, U. S. A., retired.

LYON, George Armstrong, Philadelphia, March 7, aged 76; rear-admiral, U. S. N., retired.

MCCASKEY, William Spencer, Pacific Grove, Cal., Aug. 10, aged 70; major-general, U. S. A., retired.

MCCLUNG, Thomas Lee, London, Dec. 19, aged 44; Treasurer of the United States, 1909-12.

MCCUTCHEON, James, Stamford, Conn., July 20, aged 71; merchant.

MCFARLAND, John Thomas, Maplewood, N. J., Dec. 22, 1913, aged 62; Methodist Episcopal clergyman and editor.

MCFATRICH, James Burton, Chicago, April 26, aged 52; ophthalmologist.

MCINTYRE, Robert, Chicago, Aug. 30, aged 62; bishop of the Methodist Episcopal Church.

MCKENZIE, Alexander, Cambridge, Mass., Aug. 6, aged 84; Congregationalist clergyman.

MCKNIGHT, Harvey Washington, Gettysburg, Pa., May 29, aged 71; Lutheran clergyman.

MCLEARY, James Harvey, Washington, Jan. 5, aged 68; associate justice of the Supreme Court of Porto Rico.

MACDOUGALL, Clinton Dugald, Paris, May 24, aged 75; Civil War general; Representative from New York, 1873-77.

MAGRUDER, George Lloyd, Washington, Jan. 28, aged 65; physician.

MAHAN, Alfred Thayer, Washington, Dec. 1, aged 74; rear-admiral, U. S. N., retired, author.

MARKS, Solon, Milwaukee, Sept. 29, aged 87; surgeon.

MARTIN, Frederick Townsend, London, March 8, aged 64; author.

MASON, Amos Lawrence, Albany, N. Y., June 5, aged 72; physician.

MASSEY, William Alexander, Reno, Nev., March 5, aged 58; Senator from Nevada, 1912-13.

MEIER, Edward Daniel, New York, Dec. 15, aged 73; engineer.

MERRIAM, George Spring, Springfield, Mass., Jan. 22, aged 71; author.

MERRITT, Edwin Atkins, Potsdam, N. Y., Dec. 4, aged 54; Representative from New York since 1911.

MILLER, Darius, Glacier National Park, Aug. 23, aged 55; railroad official.

MILLS, George F., Amherst, Mass., Oct. 28, aged 75; former dean of the Massachusetts Agricultural College.

MILNE, William James, Bethlehem, N. H., Sept. 4, aged 71; educator, president of Albany Normal College.

MINOT, Charles Sedgwick, Milton, Mass., Nov. 19, aged 62; professor of anatomy in Harvard Medical School.

MITCHELL, Silas Weir, Philadelphia, Jan. 4, aged 84; neurologist, author.

MORAN, Peter, Philadelphia, Nov. 10, aged 72; painter and etcher.

MORTON, Charles, Washington, Dec.

20, aged 68; brigadier-general, U. S. A., retired.

MUIR, John, Los Angeles, Dec. 24, aged 76; naturalist and explorer.

MYER, Albert Lee, Washington, July 17, aged 67; brigadier-general, U. S. A., retired.

NELSON, William, Matamoras, Pa., Aug. 10, aged 67; lawyer, author.

NEWTON, Richard Heber, Scarborough, N. Y., Dec. 19, aged 74; Protestant Episcopal clergyman.

NICKERSON, Samuel Mayo, East Brewster, Mass., July 20, aged 84; capitalist.

NILES, William Woodruff, Concord, N. H., March 31, aged 82; Protestant Episcopal bishop of New Hampshire.

NOBLE, Alfred, New York, April 19, aged 69; civil engineer.

NORDICA (Norton) Lilian, Batavia, Java, May 10, aged 54; singer.

NORTON, Edwin, New York, Dec. 31, aged 69; inventor and manufacturer.

NORTON, Elijah Hise, Platte City, Mo., Aug. 6, aged 91; jurist.

OPIE, Thomas, Washington, Oct. 6, aged 72; physician.

ORR, Alexander Ector, Brooklyn, June 3, aged 83; merchant.

OSBORN, Francis A., Hingham, Mass., March 11, aged 80; Civil War general.

PALMER, Charles Ray, New Haven, Conn., April 22, aged 79; Congregationalist clergyman.

PALMORE, William Beverly, Richmond, Va., July 5, aged 70; Methodist Episcopal clergyman, editor.

PARK, Roswell, Buffalo, Feb. 15, aged 61; surgeon.

PARKER, James, Perth Amboy, N. J., March 23, aged 82; admiralty lawyer.

PARTON, Arthur, Yonkers, N. Y., March 7, aged 71; painter.

PAYNE, Sereno Elisha, Washington, Dec. 10, aged 71; Representative from New York, 1883-7 and since 1889.

PEABODY, George Livingston, Newport, R. I., Oct. 30, aged 64; physician.

PEALE, Albert Charles, Philadelphia, Dec. 5, aged 65; geologist.

PEARCE, Charles Sprague, Paris, May 18, aged 62; artist.

PECK, Harry Thurston, Stamford, Conn., March 23, aged 57; author.

PECKHAM, George Williams, Milwaukee, Jan. 11, aged 68; librarian, entomologist.

PEET, Stephen Denison, Northampton, Mass., May 25, aged 82; Congregationalist clergyman, archæologist.

PEIRCE, Benjamin Osgood, Cambridge, Mass., Jan. 14, aged 59; professor of mathematics in Harvard University.

PEPPER, Irvin St. Clare, Muscatine, Iowa, Dec. 22, 1913; aged 37; Representative from Iowa, 1911-13.

PERKINS, George Douglas, Sioux City, Iowa, Feb. 3, aged 73; Representative from Iowa, 1891-99.

PHELPS, Charles, New York, Dec. 30, 1913, aged 79; surgeon.

PHELPS, Delos Porter, Chicago, June 28, aged 76; lawyer and politician.

PICKARD, Josiah Little, Pasadena, Cal., March 27, aged 90; president of the University of Iowa, 1878-87.

PIERCE, Arthur Henry, Northampton, Mass., Feb. 20, aged 46; professor of psychology in Smith College.

PIERCE, Charles Santiago Sanders, Milford, Pa., April 20, aged 74; logician.

POST, Charles William, Santa Barbara, Cal., May 9, aged 59; manufacturer.

POTTER, Frances Boardman Squire, Minneapolis, March 25, aged 46; author, professor of English literature in the University of Minnesota.

POTTER, William Bleecker, St. Louis, July 14, aged 68; mining engineer and metallurgist.

POWERS, Orlando Woodworth, Salt Lake City, Jan. 2, aged 62; lawyer.

RAMSAY, Fransis Munroe, Washington, July 19, aged 80; rear-admiral, U. S. N., retired.

RAMSAY, Otto Gustaf, New Haven, June 12, aged 44; physician, professor of obstetrics and gynecology in Yale Medical School.

REID, George Croghan, Washington, March 15, aged 73; brigadier-general, U. S. Marine Corps, retired.

REYBURN, John Edgar, Washington, Jan. 4, aged 68; Representative from Pennsylvania, 1890-97, 1905-7, Mayor of Philadelphia, 1907-11.

REYNOLDS, Powell Benton, Morgantown, W. Va., Dec. 29, aged 73; president of the University of West Virginia, 1895-7.

RICHARDSON, James Daniel, Murfreesboro, Tenn., July 24, aged 71; Representative from Tennessee, 1885-1905, Democratic leader in House, 1899-1905.

RICHARDSON, Rufus Byam, Clifton Springs, N. Y., March 10, aged 68; archæologist.

RICHARDSON, William, Atlantic City, N. J., March 31, aged 73; Representative from Alabama since 1900.

RIIS, Jacob August, Barre, Mass., May 26, aged 65; author and social worker.

RIORDAN, Patrick William, San Francisco, Dec. 27, aged 73; Roman Catholic Archbishop of San Francisco.

ROBESON, Henry Bellows, Walpole, N. H., July 17, aged 72; rear-admiral, U. S. N., retired.

ROBINSON, Henry Douglas, Reno, Nev., Dec. 18, 1913, aged 53; Protestant Episcopal Bishop of Nevada.

ROCKHILL, William Woodville, Honolulu, Dec. 8, aged 60; diplomat.

ROSSITER, Stealy Bates, Clifton

Springs, N. Y., June 24, aged 72; Presbyterian clergyman.

ROTCH, Thomas Morgan, Boston, March 9, aged 64; physician, professor of pediatrics in Harvard University.

RYAN, Thomas, Muskogee, Okla., April 5, aged 77; Representative from Kansas, 1877-89, Minister to Mexico, 1889-93.

SAUNDERS, Eugene Davis, Evington, Va., Oct. 27, aged 61; U. S. district judge, 1907-9.

SAWYER, James Estcourt, Glens Falls, N. Y., May 29, aged 67; brigadier-general, U. S. A., retired.

SCADDING, Charles, Portland, Ore., May 27, aged 52; Protestant Episcopal Bishop of Oregon.

SCARBOROUGH, John, Trenton, N. J., March 14, aged 82; Protestant Episcopal Bishop of New Jersey.

SCHUYLER, Montgomery, New Rochelle, N. Y., July 16, aged 70; journalist and editor.

SCHUYLER, William, Nyack, N. Y., July 7, aged 59; educator and author.

SEARS, Richard Warren, Waukesha, Wis., Sept. 28, aged 50; merchant.

SEBASTIAN, John, Evanston, Ill., March 1, aged 65; railroad official.

SHALLENBERGER, William Shadrach, Washington, April 15, aged 74; Representative from Pennsylvania, 1877-83, Assistant Postmaster-General, 1897-1907.

SHELBY, David Davie, Huntsville, Ala., Aug. 22, aged 66; U. S. circuit judge.

SHELDON, George William, Summit, N. J., Jan. 29, aged 71; author.

SHELTON, Jane de Forest, Derby, Conn., March 12, aged 71; author.

SHEPPARD, James J., Morsemere, N. J., March 12, aged 46; educator.

SICKLES, Daniel Edgar, New York, May 3, aged 88; major-general, U. S. A., retired, Minister to Spain, 1869-73.

SIMPSON, John, Galveston, Tex., Oct. 30, aged 58; brigadier-general, U. S. A., retired.

SINCLAIR, Henry Harbinson, Pasadena, Cal., Aug. 31, aged 56; engineer.

SMITH, Byron Laflin, Chicago, March 22, aged 61; banker.

SMITH, Charles William, Washington, Oct. 31, aged 74; Methodist Episcopal Bishop of St. Louis.

SMITH, Fitzhugh, New York, March 26, aged 78; Civil War general.

SMITH, John Butler, Hillsboro, N. H., Aug. 10, aged 76; Governor of New Hampshire, 1893-94.

SMITH, Joseph, Independence, Mo., Dec. 10, aged 82; president of the Reorganized Church of Latter-Day Saints.

SPALDING, Franklin Spencer, Salt Lake City, Sept. 25, aged 49; Protestant Episcopal Bishop of Utah.

SPALDING, George Burley, Syracuse, March 13, aged 78; Congregationalist clergyman.

SPITZKA, Edward Charles, New York, Jan. 13, aged 61; neurologist.

STEELE, Daniel, Milron, Mass., Sept. 2, aged 89; Methodist Episcopal clergyman, first president of Syracuse University.

STERRETT, John Robert Sitlington, Ithaca, N. Y., June 16, aged 63; archæologist, head of the Department of Greek in Cornell University.

STEVENS, Thomas Holdup, Washington, Oct. 5, aged 76; rear-admiral, U. S. N., retired.

STEVENSON, Adlai Ewing, Chicago, June 13, aged 78; Vice-President of the United States, 1893-97.

STEVENSON, Fanny Van de Grift (Mrs. Robert Louis), Montecito, Cal., Feb. 18.

STORER, Francis Humphreys, Boston, July 30, aged 82; chemist.

STRONG, Elnathan Ellsworth, Boston, April 2, aged 81; Congregationalist clergyman, editor of the *Missionary Herald*.

STRONG, William Barstow, Los Angeles, Aug. 3, aged 77; railroad official.

STROUT, Sewell Cushing, Portland, Me., Aug. 10, aged 87; jurist.

STUBBS, Joseph Edward, Reno, Nev., May 27, aged 64; president of the University of Nevada.

SULLIVAN, James Edward, New York, Sept. 16, aged 53; leader in amateur athletics.

SWANK, James Moore, Philadelphia, June 21, aged 81; iron and steel expert.

SWARTZ, Joel, Baltimore, March 16, aged 86; Congregationalist clergyman.

SWIFT, Samuel, New York, July 21, aged 41; music and art critic.

TELLER, Henry Moore, Denver, Feb. 23, aged 83; Senator from Colorado, 1876-82, 1885-1909; Secretary of the Interior, 1882-85.

THOMAS, John Wilson, Jr., Nashville, Dec. 17, 1913, aged 57; president of the Nashville, Chattanooga & St. Louis Ry.

THOMSON, James William, Moorestown, N. J., March 17, aged 77; rear-admiral, U. S. N., retired.

TICKNOR, Benjamin Holt, Boston, Jan. 16, aged 71; publisher.

TORNEY, George Henry, Washington, Dec. 27, 1913; aged 63; surgeon-general, U. S. A.

TORRENS, William Erskine, Montclair, N. J., June 20, aged 43; merchant.

TOWNSEND, George Alfred ("Gath"), New York, April 15, aged 73; journalist and novelist.

TRUE, Frederick William, Washington, June 25, aged 55; zoölogist.

UPTON, Winslow, Providence, R. I., Jan. 8, aged 60; astronomer, professor of astronomy in Brown University.

VANDERBILT, George Washington, Washington, March 6, aged 51; capitalist.

VAN NORDEN, Warner, New York, Jan. 1, aged 72; capitalist.

VOORHEES, Willard Penfield, New Brunswick, N. J., June 1, aged 62; judge of the Supreme Court of New Jersey.

VROOM, Garret Dorset Wall, Trenton, N. J., March 4, aged 70; jurist.

WAGNER, Louis, Philadelphia, Jan. 15, aged 75; banker, city official, Civil War veteran.

WALDEN, John Morgan, Daytona, Fla., Jan. 21, aged 82; Methodist Episcopal bishop.

WALLACE, Rush Richard, New York, June 12, aged 79; commodore, U. S. N., retired.

WARMAN, Cy., Chicago, April 7, aged 58; author and editor.

WASHBURN, Francis, Newburgh, N. Y., Dec. 5, aged 71; Protestant Episcopal clergyman, author.

WATSON, William, Washington, Dec. 11, aged 71; rear-admiral, U. S. N., retired.

WEEKS, William Farrar, Rutland, Vt., Oct. 23, aged 55; Protestant Episcopal bishop (coadjutor) of Vermont.

WEIGHTMAN, Richard Coxe, Washington, Feb. 17, aged 68; journalist.

WELLES, Edgar Thaddeus, New York, Aug. 22, aged 70; capitalist.

WELSH, Charles, Scranton, Pa., Sept. 12, aged 63; author and editor.

WEST, William Stanley, Valdosta, Ga., Dec. 22, aged 65; Senator from Georgia, 1914.

WESTINGHOUSE, George, New York, March 12, aged 67; engineer, inventor and manufacturer.

WEVER, John M., Plattsburg, N. Y., Sept. 27, aged 67; Representative from New York, 1901-5.

WEYL, Max, Washington, July 6, aged 76; painter.

WHISTLER, Garland Nelson, Pensacola, Fla., June 26, aged 66; brigadier-general, U. S. A., retired.

WHITTAKER, Thomas, New York, Dec. 24, aged 73; publisher of religious works.

WILBUR, Henry W., Saratoga Springs, Sept. 7, aged 63; minister of the Society of Friends, editor.

WILLARD, Charles Andrew, Minneapolis, March 13, aged 56; judge of the U. S. District Court of Minnesota.

WILSON, Helen Louise Axson (Mrs. Woodrow), Washington, Aug. 6.

WILSON, James Grant, New York, Feb. 1, aged 81; Civil War general, author.

WINCHELL, Newton Horace, Minneapolis, May 2, aged 74; professor of geology in the University of Minnesota.

WINSLOW, Herbert, Florence, Italy, Sept. 25, aged 66; rear-admiral, U. S. N., retired.

WOODBURY, John McGaw, New York, Sept. 23, aged 58; sanitary engineer.

WRIGHT, Marie Robinson, Liberty, N. Y., Feb. 1; author and explorer.

YOUNG, James Scott, Pittsburgh, Feb. 25, aged 65; U. S. district judge.

ZIMMERMAN, Eugene, Cincinnati, Dec. 20, aged 69; financier.

FOREIGN NECROLOGY

ABBOTT, Thomas Kingsmill, Dublin, Dec. 18, 1913, aged 84; librarian and author.

ANSON, (Sir) William Reynell, London, June 4, aged 70; jurist and statesman.

ANWYL, (Sir) Edward, London, Aug. 9, aged 48; Welsh philologist and author.

AOKI, Siuzo, Viscount, Tokio, Feb. 16, aged 70; ambassador to the U. S. from Japan, 1906-7.

ARGYLL, John Douglas Sutherland Campbell, Duke of, Cowes, Isle of Wight, May 2, aged 69; Governor-General of Canada, 1878-83.

BANDELIER, Adolph Francis Alphonse, Madrid, Spain, March 19, aged 73; archæologist.

BENSON, Robert Hugh, Salford, England, Oct. 19, aged 42; Roman Catholic priest, author.

BERTILLON, Alphonse, Paris, Feb. 13, aged 60; criminologist, creator of the measurement system of identification.

BETANCOURT, Julian, Havana, Aug. 2, Cuban soldier and statesman.

BLOMMERS, Johannes Bernardus, Amsterdam, Dec. 15, aged 69; Dutch painter.

BURLEIGH, Bennet, London, June 16, aged 71; war correspondent.

CALMETTE, Gaston, Paris, March 16, aged 56; editor of *Figaro*.

CAMPBELL, (Sir) Francis J., London, June 30, aged 81; musician.

CHAMBERLAIN, Joseph, London, July 2, aged 78; British statesman.

CHARLES I, King of Rumania, Bucharest, Oct. 10, aged 75.

CLARETIE, Jules Arsène Arnaud, Paris, Dec. 23, 1913, aged 73; director of the Comédie Français, 1885-1913.

COLQUHOUN, Archibald Ross, London, Dec. 18, aged 66; explorer and author.

COX, George Albertus, Toronto, Can., Jan. 16, aged 73; Canadian financier, senator.

CROCKETT, Samuel Rutherford, Avignon, France, Aug. 20, aged 53; novelist.

CROSS, Richard Assheton, Viscount, London, Jan. 8, aged 91; British statesman.

DE PRESSENSÉ, Francis, Paris, Jan. 20, aged 60; French statesman and author.

DEROULEDE, Paul, Nice, Jan. 30, aged 67; French patriotic writer and politician.

DESMOULINS, Fernand, Paris, July 15, aged 61; French painter and engraver.

DI CESNOLA, (Count) Alessandro Palma, Florence, Feb. 26, aged 76; archæologist.

DOUGLAS, (Sir) Charles Whittingham Horsley, London, Oct. 25, aged 64; Chief of the General Staff of the British Army.

DOUGLAS, Sholto, London, Dec. 27, 1913, aged 80; Admiral of the British Navy, retired.

DRIVER, Samuel Rolles, Oxford, England, Feb. 26, aged 67; professor of Hebrew in Oxford University.

DRURY, (Sir) Charles Carter, London, May 17, aged 68; British admiral.

EDWARDS, Alfred Charles, Paris, March 10, aged 55; editor of *Le Matin*.

EMMERSON, Henry Robert, Dorchester, N. B., July 9, aged 60; Canadian statesman.

ESTRUP, Jacob Broennum Scavenius, Copenhagen, Dec. 24, 1913, aged 88; Premier of Denmark.

FAURE, Jean Baptiste, Paris, Nov. 10, aged 84; French composer.

FERRATA, Domenico, Rome, Oct. 10, aged 67; cardinal, Papal Secretary of State.

FISCHER, Emil, Hamburg, Germany, Aug. 11, aged 76; singer.

FOUREAU, Fernand, Paris, Jan. 17, aged 63; African explorer.

FRANZ FERDINAND, Archduke of Austria, Sarajevo, Bosnia, June 28, aged 50.

GAFFRE, Louis Albert, Berne, July 7, aged 50; Dominican priest and Egyptologist.

GALLON, Tom, London, Nov. 4, aged 47; English novelist.

GENEE, Rudolf, Berlin, Jan. 19, aged 89; Shakespearean scholar, author.

GEORGE II, Duke of Saxe-Meiningen, Meiningen, June 25, aged 88.

GIBSON, William, Beamsville, Ont., May 4, aged 65; Canadian senator and capitalist.

GILL, (Sir) David, London, Jan. 24, aged 70; astronomer.

GINSBURG, Christian David, Palmers Green, England, March 8, aged 82; Biblical scholar.

GOBAT, Charles Albert, Berne, March 16, aged 71; peace advocate.

GRIERSON, (Sir) James Moncrieff, London, Aug. 17, aged 55; British general.

GRUNDY, Sydney, London, July 5, aged 66; dramatist.

HARUKO, Dowager Empress of Japan, Tokio, April 9, aged 63.

HASEBA, Sumitaka, Tokio, March 15; Japanese statesman.

HEATON, (Sir) John Henniker, Geneva, Sept. 8, aged 66; originator of penny postage within the British Empire.

VON HERKOMER, (Sir) Hubert, London, March 31, aged 65; painter.

HÉROULT, Paul Louis Toussaint, Paris, May 14, aged 51; electrometallurgist.

HEYSE, Johann Ludwig Paul, Munich, April 2, aged 84; German novelist and dramatist.

HIRSCHFELD, Robert, Salzburg, Austria, April 2, aged 56; Austrian composer.

HOWLEY, Michael Francis, St. John's, Nfd., Oct. 20, aged 71; Roman Catholic Archbishop of Newfoundland.

HYATT, Stanley Portal, London, June 30, aged 37; novelist.

IRVING, Laurence Sydney Brodribb, drowned at sea, May 29; author, actor.

ITO, (Count) Yuko, Tokio, Jan. 14, aged 70; Japanese statesman and admiral.

JAURÈS, Jean Léon, Paris, July 31, aged 54; French Socialist leader.

JODL, Friedrich, Vienna, Jan. 26, aged 65; professor of philosophy in the University of Vienna.

JOYCE, Patrick Weston, Dublin, Jan. 8, aged 87; Irish historian and antiquary.

KEDDIE, Henriette ("Sarah Tytler"), London, Jan. 8, aged 86; novelist.

KELLY-KENNY, (Sir) Thomas, County Clare, Ireland, Dec. 26, aged 74; British general.

KHUEN-HEDERVARY VON HEDERVAR, (Count) Charles, Budapest, April 25, aged 64; Premier of Hungary, 1903, 1910-12.

KOSSUTH, Francis, Budapest, May 25, aged 73; Hungarian statesman.

KRANTZ, Jules François Emile, Toulon, Feb. 26, aged 93; French admiral.

LAIRD, David, Ottawa, Can., Jan. 12, aged 80; Canadian statesman.

LAKING, (Sir) Francis Henry, London, May 21, aged 67; physician.

LEMAITRE, François Elie Jules, Paris, Aug. 6, aged 60; dramatic critic.

MARSTON, Edward, London, April 6, aged 89; English publisher and author.

MATSUDA, Masahisa, Tokio, March 4, aged 68; Minister of Justice of Japan.

MATTEI, Tito, London, March 30, aged 72; Italian pianist and composer.

VON MAUSER, Paul, Berlin, May 29, aged 76; inventor of firearms.

MAYO, Isabella Fyvie ("Edward Garrett"), London, May 13, aged 71; novelist.

MECKLENBURG-STRELITZ, Adolph Frederick, Grand Duke of, Berlin, June 11, aged 65.

MENELIK II, King of Abyssinia, Adis Ababa, Dec. 12, 1913, aged 69.

MERCALLI, Giuseppe, Milan, March 19, aged 64; volcanologist and seismologist.

MERTHYR, William Thomas Lewis, Baron, London, Aug. 27, aged 77; publicist, owner of Welsh coal mines.

MESTCHERSKY, Prince Vladimir Petrovitch, St. Petersburg, July 23, aged 69; Russian editor and author.

MINTO, Gilbert John Murray Kynynmond Elliot, Earl of Hawick, Scotland,

March 1, aged 66; Governor-General of Canada, 1898-1904, Viceroy of India, 1905-10.

MISTRAL, Frédéric, Maillane, France, March 25, aged 83; poet.

MONK, Frederick Debartzch, Montreal, May 15, aged 58; Canadian Minister of Public Works, 1911-14.

MONTERO-RIOS, Eugenio, Madrid, May 12, aged 82; Spanish statesman.

MORALES, Carlos F., Paris, March 2, President of the Dominican Republic, 1904-5.

MORGAN, Henry James, Ottawa, Dec. 27, 1913, aged 71; Canadian biographer and author.

MURRAY, (Sir) John, Edinburgh, March 16, aged 73; oceanographer.

O'BRIEN, Peter, Baron, Dublin, Sept. 9, aged 72; Lord Chief Justice of Ireland since 1889.

PATERSON, William, Brantford, Ontario, March 18, aged 75; Canadian Minister of Customs, 1897-1912.

PEÑA, Roque Saenz, Buenos Aires, Aug. 9, aged 63; President of Argentina.

PERIER, Charles, Paris, Dec. 13, aged 77; French surgeon.

PICARD, Alcide, Paris, Feb. 13, aged 74; educator and publisher.

PIODA, Jean Baptiste, Anzio, Italy, Nov. 30; Minister of Switzerland to the United States, 1902-10.

PIUS X (Giuseppe Sarto), Rome, Aug. 20, aged 79; Pope.

PLANÇON, Pol Henri, Paris, Aug. 12, aged 60; opera singer.

PUGNO, Stephen Raoul, Moscow, Jan. 3, aged 60; French pianist and composer.

RALEIGH (Rowlands), Cecil, London, Nov. 10, aged 58; English playwright.

RAMPOLLA, (Cardinal) Mariano, Rome, Dec. 16, 1913, aged 70; former Papal Secretary of State.

ROBERTS (Frederick Sleigh), Earl, of Kandahar, at the battlefront in France, Nov. 14, aged 82; British field-marshal.

ROCA, Julio Argentino, Buenos Aires, Oct. 19, aged 71; President of Argentina, 1880-86, 1898-1904.

RODENBERG, Julius, Berlin, July 11, aged 83; German editor and author.

ROJAS, Pedro Ezequiel, Atlantic City, June 26, aged 69; Minister to the U. S. from Venezuela.

ROSS, (Sir) George William, Toronto, Canada, March 7, aged 72; Canadian statesman, Premier of Ontario, 1899-1905.

SAID PASHA, Constantinople, March 1; former Grand Vizier of Turkey.

SAN GIULIANO, Antonio Paterno Castello, Marquis of, Rome, Oct. 16, aged 61; Foreign Minister of Italy.

SGAMBATI, Giovanni, Rome, Dec. 14, aged 71; Italian composer.

VON SCHUCH, Ernst, Dresden, May 10, aged 67; operatic conductor.

VON SODEN, (Baron), Hermann, Berlin, Jan. 15, aged 61; German theologian.

SOFIA, Queen-Mother of Sweden, Stockholm, Dec. 30, 1913, aged 77.

STAIR, John Hew Hamilton, Earl of, London, Dec. 2, aged 66; Lord High Commissioner of the Church of Scotland.

STRAIGHT, (Sir) Douglas, London, June 3, aged 69; journalist and jurist.

STRATHCONA AND MOUNT ROYAL, Donald Alexander Smith, Baron, London, Jan. 21, aged 93; Canadian statesman and financier.

SULLIVAN, Timothy Daniel, Dublin, March 31, aged 86; Irish journalist and home rule leader.

VON SUTTNER, Baroness Bertha, Vienna, June 21, aged 71; novelist and peace advocate.

SWAN, (Sir) Joseph Wilson, London, May 27, aged 86; inventor.

TENNIEL, (Sir) John, London, Feb. 26, aged 93; cartoonist.

THOMAS, Brandon, London, June 19, aged 59; playwright.

TOWNESEND, Stephen, London, May 20; surgeon and novelist.

TRAILL, Anthony, Dublin, Oct. 15, aged 75; provost of Trinity College.

TYRRELL, Robert Yelverton, London, Sept. 21, aged 70; senior dean of Trinity College, Dublin.

URIBURU, José, Buenos Aires, Oct. 25; President of Argentina, 1895-98.

VAN TIEGHEM, Philippe Edouard Leon, Paris, April 28, aged 75; French botanist, perpetual secretary of the Academy of Sciences.

VENOSTA, Marquis Visconti, Rome, Nov. 28, aged 85; former Italian Minister of Foreign Affairs.

VOELKERS, Karl, Kiel, Germany, Feb. 3, aged 77; German neurologist and ophthalmologist.

WAINWRIGHT, William, Atlantic City, May 14, aged 74; Canadian financier.

WATTS-DUNTON, Walter Theodore, London, June 7, aged 81; poet and critic.

WEMYSS, Francis Charteris, Earl of, London, June 30, aged 95; British statesman.

WERNZ, Francis Xavier, Rome, Aug. 20, aged 72; General of the Society of Jesus.

WHITNEY, (Sir) James Pliny, Toronto, Ont., Sept. 25, aged 70; Premier of Ontario since 1904.

WHYTE, (Sir) William, Los Angeles, April 14, aged 70; vice-president of the Canadian Pacific Railroad, 1904-11.

WOLFSOHN, David, Cologne, Sept. 15; leader of the Zionist movement.

WRIGHT, William Aldis, London, May 20, aged 83; Shakespearean and Biblical scholar.

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